Chemical

March 13, 1954

Price 35 cent







Public Health's Schwob: The chemical industry and he cop plaudits in drive for cleaner streams. p. 16

Potassium nitrate from the sea; here's how pioneer process will do it p. 44

The market's there, but water softeners still take a heap of selling p. 58

Around the corner and already visible are machines that scan, speed up literature searches . . . p. 74

Latex paints shift into high, may go outside, crash lush market for exterior finishes

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Chemical Week • March 13, 1954

Chemical Week-

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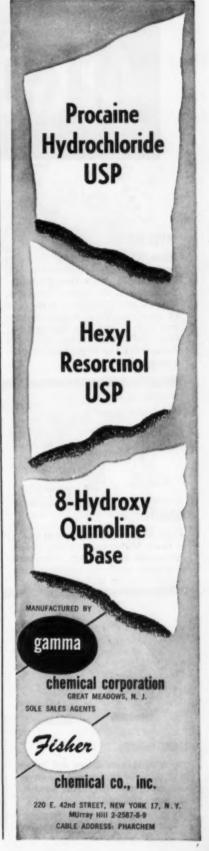
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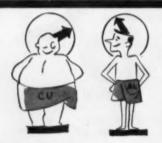
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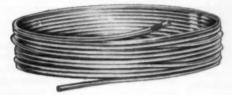
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March 13, 1954 • Chemical Week

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OPINION

One in Sixty-Four

To the Editor: I note the following statement (Feb. 20) by Felix J. Underwood on fluoride: "The use of such products is impractical, scientifically unsound, may be dangerous to health."

For the information of fellow readers:

When I was four years of age, to avoid the use of water from a well below the barn, my father constructed a cistern to get water for drinking and household uses. My first teeth and six-year old molars decayed and the latter were pulled before they were full grown. The family physician prescribed a medicine containing fluoride with instructions to put the spoon way back in my mouth to keep the medicine off my teeth as it might make my teeth brown. I have one tooth slightly brown on top.

Results: I have passed my 70th

Results: I have passed my 70th birthday and have lost but one tooth in the past 64 years and that was from biting on a rock in eating spinach. Accordingly, I disagree with the quoted statement above.

H. I. SMITH Washington, D. C.

We don't see that there's really any quarrel between Readers Smith and Underwood. Reader Underwood cautions against "unsupervised use of commercial preparations containing fluoride," whereas Reader Smith admits that "the family physician prescribed" and gave explicit directions.—En

Taxed vs Tax-Free

TO THE EDITOR: I have read with interest the news article that reports the views of Stanford Research Institute's Hobson on taxation (Feb. 27). This is a very important subject, which is often grossly misinterpreted. . . .

The so-called tax-free or nontaxpaying institutes have been at odds with the American Council of Commercial Laboratories, the Treasury and commercial laboratories.

Commercial laboratories, like ourselves, have done research for years . . . and our record of profitable research is far greater than that of the nontaxpaying institute . . . as we must produce to get repeat business. . . .

The nontaxpaying institutes are profit sharing... as their income increases top management takes higher salaries. This is profit sharing. The 30% of the profit that Stanford states is earmarked for work in the public

interest, of course, is of interest to SRI . . . possibly with an eye on getting further work. . . . We might say in a similar vein that all work done on the company's account is done in public interest because we do this rather than lay our men off between jobs. . . .

The nontaxpaying institutes claim that because of their tax status they can do cheaper work. This is not correct. Such organizations are generally run with the attitude that each worker has a job for life . . . while in a commercial laboratory each worker realizes that as he produces so will his salary increase. . . . That is, the more he is able to give the client, the more income he will receive. This is an incentive that inspires the men. . . .

Admiral D. C. Ramsey, president of the Aircraft Industries Assn. of America, is correct when he says that work can be done better by a profit-sharing company. . . .

PHILIP SADTLER Samuel P. Sadtler & Son, Inc. Philadelphia

Fireworks Law

To the Editor: Referring to "Fireworks Under Fire" (Feb. 20), I think it is important to point out that there are two bills being presently considered by the Senate Judiciary subcommittee.

The one mentioned in your news article S2245-HR116) merely prohibits the transportation of fireworks into any state in which the sale or use of fireworks is prohibited. Responsibility of compliance is placed solely on the fireworks manufacturer.

Fortunately, a second fireworks bill is available for committee consideration (S1722-HR4651). This bill would establish standards of safety for both use and transportation and regulate fireworks at their basic source, which is their manufacture and importation. Canada has such a federal system of standardization and identification and has eliminated its fireworks problem at the federal level.

Bill S1722 directs the ICC to establish . . . standards of safety for all

CW welcomes expressions of opinion from readers. The only requirements: that they be pertinent, as brief as possible.

Address all correspondence to: W. A. Jordan, Chemical Week, 330 W. 42nd St., New York 36, N. Y.

OPINION.

fireworks that may be used by the public . . . prohibits the transportation in interstate commerce of all fireworks items that do not comply with their standards.

Such a law would provide uniformity for manufacture, operation and law enforcement. Absence of proper standards and definitions of what classifies fireworks in the various state laws (and also absent in S2245) has been the principal cause for lack of enforcement and failure to secure convictions.

Those chemical manufacturers and suppliers interested . . . in having a clearly defined law are urged to write Sen. Alexander Wiley, chairman of the Judiciary subcommittee, who is studying both bills. . . .

JAMES M. VREELAND, Vice-President Hummel Chemical Co., Inc. New York

Reflavored Food

TO THE EDITOR: In your article "Everything But Smell" (Feb. 13) you used the phrase . . . "or in grocery stores, where foods might absorb odors." A . . . warning has been left unsaid.

The industrial consumer of odorless paints must exercise care where soft foods are exposed; namely, butter, milk, ice cream, cheese, etc. May I suggest that the fact that no odor is perceptible (by us humans) should not be construed to mean that there are no vapors leaving the paint film upon drying. These vapors will seriously reflavor soft foods.

Opinion varies from person to person on change in taste and change in odor of these foods after having been exposed to drying odorless paint.

Care must be taken in the use of odorless paints where certain foods are present.

ALFRED T. SAHLI Cleveland

Local Coordinator

To the Editor: Your welcome description of the purpose and functioning of technical society councils (Feb. 20) should help us in our purpose of serving in activities where no one society can adequately represent a wide spectrum of technical men...

Lest the import be mistaken, the so-called "national organization" of councils consists merely of an interchange of information on organizational setup, mode of operation, types of projects, and other items of mu-



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Here, at the "top of the South," the people are really friendly to new and expanded industry for, with traditions going back to Colonial days, they know that more invested capital means greater opportunities for workers who realize what free American enterprise can do.

Our Area Development Department can help you find the location you want for your industry. We have the information on sites, natural advantages and technical details.

A letter, postal card or telephone call will start this confidential service to you.

AREA DEVELOPMENT DEPARTMENT

VIRGINIA ELECTRIC AND POWER COMPANY

RICHMOND 9, VIRGINIA

OPINION. .

tual interest via liaison committees in the various councils. . . .

A technical societies council is definitely a local group serving local needs. . . .

We are a bit reluctant to see the term "recruiting" used in connection with our career conference program since our purpose is to describe and inform students about careers open to them rather than to induce them to enter into training for any specific ones.

It is on this basis that we have been successful in working with and obtaining the support of the several high-school boards of education in the area. . . .

CLIFFORD A. HAMPEL
President
Chicago Technical Societies
Council
Melrose Park, 111.

Canning Booster

To the Editor: May we compliment you on the excellent report on canned rotor centrifugal pumps titled "Primed For Action" (Feb. 6) . . .

JOHN PROCOPI
Manager, Market Development
Chempump Corp.
Philadelphia

DATES AHEAD

American Pharmaceutical Manufacturers Assn., annual meeting, Boca Raton Club. Boca Raton, Fla., March 29-31.

National Farm Chemurgic Council, Inc., annual conference, Peabody hotel, Memphis, Tenn., April 5-7.

Assn. of Consulting Chemists and Chemical Engineers, symposium and banquet, Belmont Plaza hotel, New York, April 27.

Air-Pollution Control Assn., annual meeting, Patten hotel, Chattanooga, Tenn., May 3-5.

Forest Products Research Society, national meeting, Grand Rapids, Mich... May 5-7.

American Institute of Chemists, annual meeting, Hotel Berkeley-Carteret, Asbury Park, N.J., May 12-14.

Flavoring Extract Manufacturers' Assn., annual convention, Biltmore hotel, New York, May 16-19.

Chemical Specialties Manufacturers Assn., midyear meeting, Netherlands Plaza hotel, Cincinnati, May 23-25.

Manufacturing Chemists Assn., annual meeting and joint outing with SOCMA, Greenbrier hotel, White Sulphur Springs, W.Va., June 3-5.

American Plant Food Council, annual meeting, Homestead, Hot Springs, Va., June 10-13.

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Write for

Bulletin 0-54-1

FOSTER WHEELER CORPORATION

165 BROADWAY, NEW YORK 6. NEW YORK



NEWSLETTER

This isn't official yet but don't bet against it: Celanese is planning a major fertilizer venture. It's been conducting surveys for some time, has lately been eyeing sites along the Mississippi River.

It figures to be a high-analysis fertilizer project that would involve an investment close to \$10 million. Capacity for the plant will be between 150,000 and 200,000 tons/year.

Wondering about wonder fibers? The National Retail Dry Goods Assn., with strong support of synthetic fiber makers, is drafting a bill that would cover labeling of all fabrics as to fiber content. At present, wool fabrics are Congressionally regulated; rayon acetate, silk and some linens come under Federal Trade Commission rules.

Target of the new measure: consolidate all fiber labeling under a single measure; defining labels on synthetic blends. Possible opposition: from cotton interests; their fabrics never have been labeled.

Proponents don't expect any Congressional action this session, but they're going to get the measure introduced in about 30 days—to start gestation.

"Useful information that can be translated into dollars and cents by both management and technical men"—that's the goal the Atomic Industrial Forum Inc. has in mind for its first forum for members at New York City's Hotel Biltmore next week (March 15-16).

The group is made of up firms that are participating in the atomic energy program, includes some of the biggest names in the field. Experts will discuss business opportunities in atomic energy, but will shy away from large-scale power production except as it provides a market for equipment, services, materials. Later sessions will go into other phases.

Hauling chemicals around the country is now a big, bustling business. Railroads, trucks, boats—all serve as chemical carriers. But this week the spotlight is on the water routes.

Oronite Chemical made a deal with parent Standard of California to refit its tanker R. G. Follis with special equipment to transport Oronite products.

• Shell Chemical signed a contract with Westoil Terminals (San Pedro, Calif.) for bulk storage of isopropanol, acetone, MIK and MEK. Tank-carred from Shell's Martinez plant to the San Pedro terminal, the products can then be routed via a Shell Oil tanker. The first shipment for the East (50,000 bbls.) arrived at the company's Seawarren (N.J.) plant late last month.

• Hooker Electrochemical has appropriated funds to buy a barge. Ultimate purpose: to move products of its Montague (Mich.) plant into the Chicago area.

The government's five-year program for developing economic electric power from nuclear sources was unveiled this week at the Ameri-

can Institute of Chemical Engineers meeting in Washington.

It calls for construction of five sizable reactors—at least three of which would actually produce power. Four are stepped-up versions of experimental or power reactors already in operation. The bigger reactors, however, would incorporate considerable variations in design from the ones now in operation.

The fifth will be a new type, using sodium-potassium alloy as a coolant, graphite as a moderator. AEC hopes this will simplify future reactor design by allowing the more efficient high-temperature operation without hard-to-handle high pressures.

A sixth power-oriented reactor, not included in the five-year program, is a 1,500-kw. package plant suitable for use at out-of-way military posts. Design has already been drawn for this one; industrial firms have been asked to submit advice on bidding procedures. It will probably be completed ahead of the others.

The witch's concoction being brewed elsewhere in the process industries this week sums up as: bubble, bubble, toil and trouble.

• One of the bubbles: polyol—sent up by Atlas Powder. Big in sorbitol, Atlas snagged a hefty, \$5,940,000 certificate of necessity for glycerine. The firm will get a 60% write-off for the plant proposed for Pekin (Ill.).

Atlas is mum on the whole subject, says merely that the project will require further study before it's ready to tip its hand. Industry speculation, however, is that the glycerine will not come from petroleum sources as does Shell's (and as will Dow's). Instead, is the guess, it will be derived from sugar.

The reasoning behind the speculation runs like this: sugar-based glycerine will be more in line with the firm's sorbitol process, which consists of reducing glucose. Getting glycerine from sugars, moreover, is not much of a trick, chemically. Girdler's R. A. Bottoms, for instance, received what could be a very illuminating patent (U. S. P. 2,335,731) on the subject back in 1943.

In one of his examples, Bottoms showed it's possible to convert sorbitol itself into glycerine at a theoretical conversion rate of 75-80%. And the Germans operated a plant during the war for converting beet sugars to glycerine (40%), propylene glycol (40%), mixed polyols (20%).

• The other bubble: chlorophyll—which is just about to burst. Colgate started it early this month by slashing the price of its chlorophyll tooth paste so that it retails at same price as its regular dentifrice. Though no one has followed suit, word in the trade is that Lever Brothers may drop its prices May 1.

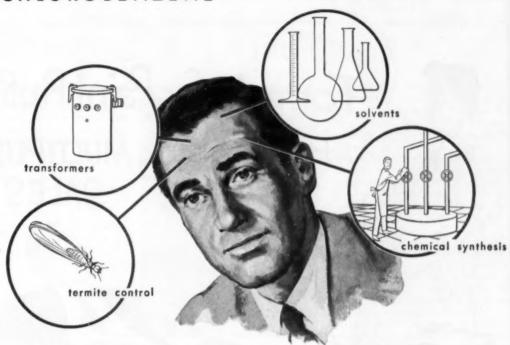
Chlorophyll tooth pastes can't be counted out, however. Their sales are not as high as they were a year ago but they still account for roughly 30% of the business.

Toil is what three AFL craft unions are refusing to do at Mathieson's Morgantown (W. Va.) ammonia plant—without a pay hike. And trouble with competition is the reason advanced by Mathieson for not meeting the union's demands. The unions—which represent about 235 maintenance employees—are asking for a $20\phi/\text{hour}$ package increase. Mathieson balks at this, says its ammonia-from-coal process is running into stiffer competition from producers who start with natural gas.

The plant was kept in operation last week by the approximately 525 production workers who are members of United Mine Workers District 50. The latter doesn't support strikes by rival unions.

. . . The Editors

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Phthoughts on Phthalic-by "Doc Barrett"

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And there are many other reasons for the popularity of alkyds derived from "P.A." as a paint base. "Doc Barrett" says these include: ease of application, better washability, better adhesion, and a more beautiful, lustrous finish. And he should know because he helped to make pos-

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BARRETT CHEMICALS

BUSINESS & INDUSTRY.

Green Light on Raids

Industry in general and chemical companies in particular are vexed this week over prospects for a rising tide of intra-plant squabbles between rival labor unions—the possible result of the National Labor Relations Board's long-awaited decision in the American Potash & Chemical Corp. case (CW, Oct. 17, '53).

Rejecting arguments by chemical industry spokesmen, NLRB decided by 3-to-1 vote—on the day before Albert Beeson, formerly of Food Machinery & Chemical Corp., was sworn in as fifth member of the board—that AFL "craft" unions would be allowed to try to carve out small bargaining units in a chemical plant, even though the entire work force might have been represented by a single "industrial" type union.

The over-all policy decision came about in this wise: The Trona, Calif. plant of the basic chemical firm was the battle-ground for five separate unions seeking to represent its employes—two wanting to represent all production and maintenance employes; the others attempting to take over certain workers they believed came under their jurisdiction.

This became a test case when a Democratic-holdover board member, Ivar Peterson, complained several months ago that the old Truman board had been disrupting labor relations by a too-liberal craft-severance policy; that this policy should be reviewed by the new board and sharply tightened up. Peterson lost his fight in this decision, charging in his dissent from the ruling that craft unions "now have an open invitation to invade industries and plants where stable industrial-type bargaining relations have existed for a substantial period."

American Potash and the CIO agreed with Peterson. The company had urged the NLRB to make the basic chemical industry immune from craft raids. Since 1948, four industries—basic steel, aluminum, logging and wet milling—have had this immunity, but the board advised flatly that no new industries would be added to this list.

Instead, it ordered an election that would permit electricans and power house employes to join separate unions, with remaining employes voting on whether they want to be represented by a third union.



NLRB'S FARMER: For craft unions, a happy hunting ground in chem plants.

At the same time, the three-man majority—led by NLRB Chairman Guy Farmer—pledged that henceforth, only "true craft units" would be severed. From now on, it will not allow unions—such as the AFL Machinists—to cut away "multiemploye" units of varied-craft workers. (For instance, the Machinists have frequently sought to bargain for plumbers, carpenters, sheetmetal workers in separate units—but this activity is now barred.)

In setting up this new restriction, the majority says a true craft is one composed of highly skilled workers who go through an extensive apprentice training program or have the necessary experience to fill the test of a particular craft.

What does this mean for the chemical industry? It gives the official green light to AFL craft unions to follow what has been the practice of recent years—that of carving out units of two, five or ten employes who had been represented by an industrial-type union along with the rest of the employes.

Tough on Mergers

The first antimerger case under the Republican administration has been filed. And, from the looks of its complaint issued over the weekend, the Republican-controlled Federal Trade Commission will be a tough customer. The charge: that Crown Zellerbach

Corp. of San Francisco violated the law last June when it bought up the stock of the St. Helens Pulp and Paper Co. (CW, May 23, '53). The commission's object: divestment of St. Helens

Actually, this was only the second case to be brought under the new antimerger law created in 1950 when the 81st Congress put more teeth in the old Clayton Act. The other, filed against Pillsbury Mills in 1952 by a Democratic-majority FTC, is still pending. The law provides authority to forbid or break up a merger formed through stock acquisition or purchase of assets if "in any line of commerce, in any section of the country, the effect may be substantially to lessen competition or create monopoly."

An indication of the Republican commission's philosophy came last December in a procedural decision on the Pillsbury complaint. FTC said, in effect, that the big flour company's merger with Ballard & Ballard and Duff's Baking Mix division of American Home Products Corp., plus other evidence, was enough to establish a prima facie case of violation. Unless Pillsbury could prove otherwise, divestment would follow. Pillsbury quickly got rid of its Duff interests and moved to dismiss that part of the original case. The motion was denied.

Presumably, FTC lawyers think their complaint against Crown Zellerbach is also fact-laden enough to constitute a prima facie case at the hearings. The commission charges that, prior to the merger, the San Francisco company and St. Helens accounted respectively for 50% and 20% of the total sales of kraft paper and paper products in the Western states area. The only other major competitor in the area, Longview Fibre Co., allegedly took care of 15% of the sales. The company has been given 20 days to answer the complaint, with hearing set for May 4.

Crown Zellerbach's relations with FTC have long been strained. Litigation on a big discriminatory pricing case filed against the company in 1946 dragged on for years until it was dismissed last July—just one month after the merger that FTC now wants to break up.

To chemical executives contemplating mergers, the new FTC action means this: to be safe rather than sorry, better have the company lawyers take a second look.



LOS ANCELES TIMES

LOS ANGELES' FAGG, HITCHCOCK, BECKMAN: New drive on old smog.

Murky Badge of Bigness

People used to figure that a town was mightly small if it didn't have a movie house; nowadays, a community is deemed "'way out in the sticks" if it doesn't have a pollution problem.

doesn't have a pollution problem. This week, CW finds that in nearly every state of the union, industrialists, politicians and just plain people are taking sharper interest in clean air and clear water. In some places, this interest is evinced only in talk, but more often than not—and particularly in cities that are big and begrimed—people are actually doing something about it. To its eternal credit, most of the chemical industry is aligned on the side of action.

In fact, says the Manufacturing Chemists' Assn., the chemical industry is taking the lead in steps to abate air and water pollution, with expenditures of vast amounts of scientific skill and more than \$40 million a year on research and corrective measures.

Outdoorsmen All: One place where there's both talk and action on this subject is Washington, where only last week President Eisenhower, Interior Secretary Douglas McKay and Under Secretary Ralph Tudor were going over some of the water problems touched with a national interest.

A federal government man was recently honored for his "outstanding effort to conserve and protect the nation's water sources through pollution abatement." He was sanitary engineer Carl Schwob, director of the Public Health Service's Water Pollution Control Division. Schwob—pictured on the cover receiving first annual Nash Conservation Award from Pres. George Mason of Nash-Kelvinator—and all others who work for pollution control are applauded by outdoorsmen (like Eisenhower, McKay and Mason), who are devoted to the "clean streams" ideal. Schwob's job is to see that his agency carries out the Water Pollution Control Act, which was enacted in 1948 and reenacted last year to run to 1956.

That law offers federal loans to

cities installing sewage treatment plants, but no aid on industrial pollution control facilities. Chemical concerns were hoping and the Chamber of Commerce of the U.S. was asking that the Internal Revenue Code be amended to permit a firm to charge off such expenditures over five years instead of over the life of the equipment; but hope for this change was dashed last week. The House Ways & Means Committee decided that the only relief it could grant now is in the write-off clause on all industrial equipment-two-thirds of the value in half the life.

New Award Planned: Another award is in the news this week. It's the Frank A. Chambers Award, to be presented each year by the Air Pollution Control Assn. (Pittsburgh), starting at its 1953 annual meeting May 3-6 in Chattanooga. Chambers, one of the first technical engineers employed as head of a big-city smoke control bureau, served in that capacity in Chicago for more than 40 years. He was executive secretary of APCA until his death in 1951.

Out in California, where "smog" is a perennially hot topic, the Southern California Air Pollution Foundation has chosen a new executive and pressure has been building up for Gov. Goodwin Knight to ask the legislature to take up pollution problems during the current session. New president and managing director of SCAPF: Lauren Hitchcock, previously a chemical engineering consultant in New York. He was introduced to his new community by trustees Fred Fagg, Jr., president of the University of Southern California, and Arnold Beckman, Los Angeles industrialist.



WIDS WORLS

EISENHOWER, McKAY, TUDOR: In top circles, close interest in clean water.

BUSINESS & INDUSTRY

Pointing a finger of suspicion at air pollution last week was a USC pathology professor. Says he: "The atmosphere seems to be most to blame for the rapid rise of lung cancer. The disease has increased most rapidly in industrial and urban areas suffering from air pollution." And AMA's Industrial Health Council says evidence of possible relationship between air pollution and lung cancer is "enough to warrant more study."

Chemical plants are on the spot in two currently controversial water pol-

lution cases:

• In southcentral Illinois, citizens' protests led Acting Gov. Warren Wood to order the State Sanitary Water Board to investigate presence of bad-tasting chemicals in the drouthshrunken Kaskaskia River, which runs past the National Petro-Chemicals plant at Tuscola. With city water mains shut off, National Petro-Chem has been in a quandary over how to dispose of plant wastes.

• At Edmonton in western Canada, following complaints from downstream Prince Albert, Sask., the Alberta Public Health Dept. has ordered an unidentified company—possibly one of three oil-skimming firms or Canadian Chemical & Cellulose—to stop discharging "two or three" waste products into North Saskatchewan River.

That chemical and petrochemical companies are genuinely concerned about pollution posers such as these is evidenced anew by the sponsorship of the Southern Industrial Wastes Conference to be held April 21-23 at Houston. The sponsors: MCA, Texas Chemical Council, and Southern Assn. of Science & Industry.



UNITED PRESS

ILLINOIS' WOOD: Petrochemicals in river equals opportunity for truckers.



CLEVENGER: Across the board cuts . . .



JENSEN: Expected to agree.

Presage of Things To Come

Carefully watched by interested chemical companies, House Appropriations subcommittees in recent weeks have been pouring over the details of government department budgets, the first actually prepared by the Eisenhower Administration. And now, Washington observers would appear to have a reliable bellwether as to what action the House will take on the requests.

Sounding the tenor of things to come: the seven-man committee under Ohio's Cliff Clevenger, which has just presented its report on State, Justice and Commerce Dept. budgets. Its general course: to disallow increases across the board, particularly to agencies with which the chemical industry must deal.

First question in the minds of some observers is whether the move was conditioned by economy alone, or whether there was a lack of rapport between congressmen and the specialists called in for advice. Certainly the exchange between Rep. Frank Bow and National Bureau of Standard's Allen Astin did nothing to encourage faith in the reliability of specialists' figures.

Mr. Bow: "In your justifications last year, you asked for \$62,100, and you show us now that actually instead of \$62,100 . . . you want \$82,000 in 1954 . . . with an additional \$9,000. Things just don't seem to add up . . ."

Dr. Astin: "Well the whole thing is difficult to explain . . . "

Dr. Bow: "You realize then how difficult it is to sit where we do and try to understand these figures . . ." Regardless of what prompted the action, however, the Administration has formidable ammunition (in the form of the Kelly Report, CW, Oct. 31, '53) with which to fight the Clevenger recommendations. A committee headed by Bell Laboratories' Mervin Kelly reviewed bureau functions and operations, reported that "since 1950 the decrease in basic programs must be considered as tragic. The ground lost since 1950 should be regained in the next two fiscal years, and the programs then expanded . . ." About \$8 million was requested for the NBS program; the Clevenger committee suggests that \$6 million will be adequate for the operation.

General Slashing: In line with the apparent House determination to cut

back budget allotments:

• The Business & Defense Services Administration, plugged by Commerce officials as "point of contact" between business and government, will be allotted \$6,070,000, a reduction of \$1,230,000 from its request. Thus, where BDSA had planned to expand its program, it now will be forced to continue at just about the same rate as during the current 12-months. Example: BDSA'S Chemical and Rubber division was slated to be boosted in size from 32 to 55—largest increase of any of the 25 industry divisions.

There may be an outside chance, though, that the Chemical and Rubber division—despite BDSA cutbacks—may be spared backtracking on its expansion program. At present, BDSA's largest division is its iron and steel group, which still has responsibility

for some metal controls. When these controls come off, there will be employees available for other divisions, and with its plans for expanded statistical and other services, the C&R group would stand high on the priority list.

• Another fund trimming may also affect statistical services. The census Bureau was cut on general expenses from \$6,870,000 to \$6,200,000. Special appropriations for a sample survey of agriculture (\$3,500,000) and spot checks of business and manufacturers (\$650,000) were turned down. In view of the Watkins report, which recommends some large expansions in census activities (p. 23), the Commerce Dept. will ask a supplemental appropriation request for census activities. These two projects could easily be included.

Coming off slightly better in the Clevenger committee recommendations: the Justice Dept.'s Antitrust Division—which received its requested budget estimate of \$3.1 million—about the same as it will spend in the cur-

rent fiscal year.

Coming Up Next: Next appropriation bill to be issued will cover the budget estimates of the Interior Dept., is being considered by a subcommittee of five under Iowa Rep. Ben Jensen. Of most interest to chemical men will be the comparative part of the Bureau of Mines appropriation allocated to oil shale investigations at Rifle, Colo., and at Laramie, Wyo. In hearings before the committee, bureau officials reported that a fluidized process now being checked experimentally at Laramie is 10 years ahead of pilotplant-stage work at Rifle. To Congressional queries on why the Rifle project is then being continued, officials report that the Laramie process was developed to handle the shale fines not adapted to the Rifle retort. Whether it can supersede the Rifle synthetic fuel process (which, in itself, has been reported as coming within a penny of the costs of oil refining) may depend on costs of pulverizing shale for the Laramie process.

But such reasoning may not appeal to Jensen committee members as a sound reason for hiking budget allotments. Industry spokesmen could well consider what happened when the Bureau of Standards' Astin failed to make himself understood, and take pains to outline their requirements.

EXPANSION. . . .

Asphalt: Production is expected to be started March 15 at a new \$2-million asphalt plant being built by Allby Asphalt Refining Corp. in Hammond,

Ind. Capacity: 50 million gal./year . . . making it the third largest independent asphalt refinery in the U.S. The new plant site (on a 150-acre tract) has facilities for storage of 8 million gal., is served by two railroads and a fleet of transport trucks. Sponsors: Byerlyte Corp., Cleveland, and Allied Materials Corp., Oklahoma City. They recently organized Allby.

Lithium: Directors of Foote Mineral Co. have approved expansion of facilities to produce lithium ores and chemicals. Major additions: at the company's Kings Mountain, N.C., and Sunbright, Va., plants. Facilities at Exton, Pa., will be expanded to a lesser extent. Probable cost: several million dollars, financed through bank loans rather than by public financing.

Epoxy Resins: Shell Chemical Corp.'s epoxy resin plant at Houston, Tex., has just been brought onstream, will triple the company's production of epoxy resins. As part of the same expansion program, Shell Chemical is also opening a bis-phenol-A plant.

COMPANIES. . . .

Stockholders of Dominion Asbestos Mines, Ltd. have approved an agreement with National Gypsum Co. whereby National Gypsum will be granted an option to purchase the property and assets of Dominion. Also agreed upon: a bylaw that will permit issuance of \$3 million of first mortgage bonds as required by terms of the agreement.

Mallinckrodt Chemical Works is preparing its first public offering of securities, has filed a registration statement covering 75,000 shares of its Class A common stock. Underwriter: Newhard Cook & Co., St. Louis investment bankers. Proceeds from the sale will be used to continue expansion—including a 75% addition in laboratory space.

Textron, Inc. has added an offer of \$2 extra per share—"to sweeten" its stock exchange offer to American Woolen Co., has also reduced the number of shareholders of American Woolen common that must accept the offer to make it effective. Initial proposals were conditioned on acceptance by 80% of American Woolen's 978,342 stockholders; the new offer will become effective on acceptance by not less than 300,000 shareholders.

United States Vitamin Corp. is merging two subsidiaries into a new division — Arlington-Funk Laboratories. Reason: "To facilitate expansion into the pharmaceutical field." The two subsidiaries involved: The Arlington Chemical Co. (an ethical pharmaceutical house) and Casimir Funk Laboratories (pharmaceuticals).



Due for an Upswing

IN ITALY, in 1953, foreign trade dropped off—from \$1.2 million worth in 1951 to \$1.0 million last year. Major reason: increased West German competition in South America. But capacity production at Montecatini's antibiotic plant at Milan (operated by the Farmitalia trust) should swell export quotas this year. Apt to feel the impact are U.S. pharmaceutical companies in South, Central America, and specialty exporters — shipping to India, the Far East.





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* Potasse et Engrais Chimiques



Brimming Confidence

In direct denunciation of recessionboding economists, chemical executives this week predict good sales, higher profits in 1954. Problems—but not real worries—involved in sales and expenditures are of chief concern today. Suggested as the greatest single threat to business: the psychological effect of a continued diet of recession talk, and inflation-mongering by industry in general.

"I don't think the pessimistic economic forecasts have affected prices in the chemical industry to any marked degree yet," offers one West Coast manufacturer. "But it could happen. Once you get a fear psychology going, you talk yourself right into a price war.

"Our biggest headache the shakedown—has already passed."

People stop buying in this kind of atmosphere." States another: "We're not much concerned with recession here (Gulf Coast). Supplies have caused us some concern—but the whole business picture looks good. We're worried mainly that other chemical men (in other sectors) may allow temporary dips in production to mushroom out of all proportion to their real significance."

Pressure on Sales: Most often mentioned in CW's poll of chemical executives as a major headache today: getting the jump on sales. "On most of our products," explains a Midwestern vice-president, "supply is bound to be more plentiful in '54 due to an increase in output." To offset the situation, "we've intensified our sales effort, divided our sales department into two separate divisions."

Or again: "In our industry (insec-

"What the Eisenhower Administration will do about laxes...our main concern."

ticides, pesticides) the shakedown is over already. Inventories were cut drastically last year; we're in a much healthier position today than we've been in for some time. Now our company's at a firm working level—no surplus—and we intend to stay that way. How? Through a concentrated drive on sales."

Cutting Costs: Shaving expenditures is a prime target of most chemical executives today. One New York

vice-president explains: "it's easy enough to talk about the problem in executive board sessions . . . but putting your intentions into practice is a

"Greatest worry . . . that we'll talk ourselves into hard times."

different question altogether. Many of our younger men have grown up in an atmosphere of lush profits, easy spending. They have to be re-educated altogether . . . it takes time, continuous prompting.

Or: "In recent months our biggest single headache has been reorganizing departmental responsibilities . . . in an attempt to reduce spending. And if taxes continue to drop . . . you can expect even greater brow-beating on the subject . . . from executives throughout the industry."

Predicting Tax Cuts: Outguessing the economists—on what the Eisenhower Administration will be able to do about taxes—is also causing restless hours. Admits one Midwestern treasurer: "We're quite frankly hard put

"Re-educating employees.... conditioned to an 18e dollar is the greatest single problem executives from ladar."

to decide what to do about our expansion program. On the one hand, we're in a position now to seriously consider further diversification; on the other . . . waiting until next year (when tax policy may be more clear-cut) has certain obvious advantages." Or (from the Pacific Coast): "many companies here are holding back on building large new facilities now . . . because they think taxes will be cut in future years. The new depreciation rules under consideration (see p. 34) will offset that consideration. That's why we're hoping that adoption will come quickly . . ."

Other worries of a more transient nature: overproduction, tariff inequalities.

"Selling is our main head; ache loday . . . everyone's out pitching now."

But by and large, chemical men the nation over are a confident lot today. The reason's simple: business has rarely been better, gives good signs of holding its own in the months ahead.



A thought or two about things new and interesting in the field of surface-active chemistry . . .

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Keen on Politics, Caustic toward Rivals

Chemical management men who want to see themselves through the eyes of their employees will have to judge by the workers' actions or else become mindreaders; you won't find out merely by reading the employees' labor union newspapers.

But reading these 8- to 20-page publications is still well worth the time of a company executive. A CW survey of union periodicals this week shows that labor papers are urging upon union members actions and attitudes that can affect company operations in numerous ways. However, relatively little space is devoted to articles about "the boss."

Do chemical workers believe what they read in union newspapers, in preference to what they see in company house organs and in their hometown dailies? This is something that varies with the individual; in general, from what union members do and say, it appears that frequent reading of conflicting stories has tended to make these people somewhat cynical toward all published views. There's keen competition for these men's minds (CW article on company magazines, Feb. 27), and victory each month depends on the candor and forthrightness used in treating topics that are important to the workers.

Steeped in Politics: A sweeping change has come about in chemical union papers during the past year, crowding out stories about employers. More and more, unions are concerned about political issues, and particularly

national politics. Before the 1952 election, union papers touched on politics frequently, but now their attention to this subject amounts almost to an obsession.

Labor unions, of course, were founded for economic purposes. They explain their present preoccupation with politics as being necessitated by the fact that what goes on in Washington has profound effects on business, industry and finance.

Catalog of the political likes and dislikes of the major unions in the chemical field: their papers (except



GAS-COKE'S CRAGO: His union newspaper steers clear of glorifying.

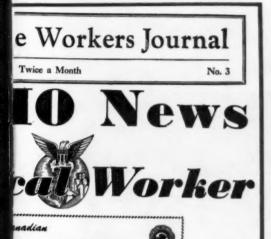
the left-wingers' sheets) enthusiastically support the United Nations, the North Atlantic Treaty Organization and the Point Four program; they're in favor of greater military preparedness and a lively public works program; they endorse the principle of a graduated income tax ("biggest taxes on biggest incomes"); and they want the federal and state governments to increase social security and unemployment compensation benefits.

Conversely, union editors freely blast away at "isolationists" who op-pose foreign aid, at "selfish interests" that want private industry to develop atomic energy and hydroelectric power, and at "reactionaries" who suggest that a national sales tax would permit lowering of income tax rates. Of course, the union journalists' heaviest ammunition is fired at those who stick up for the Taft-Hartley labor law.

A few union editors (like Warren Irvin of District 50, formerly of the New York Times) have strong journalistic backgrounds; others are career unionists "filling in" as editors.

Rough Treatment Rare: It used to be that the union papers made a point of scolding management regularly and rigorously, but now the union scribes use harsher language in writing about their rivals. Example: When the International Chemical Workers Union (AFL) won a plant election in Ohio, its newspaper referred to the opposi-

Chemical Week is not infrequently berated and castigated, too, is denounced as "a manage-ment magazine,"



Chemical Worker

tion in these none too tender terms:

"The United Rubber Workers (CIO) set a new record, even for them, in invectives, lies and threats . . . and false campaign promises."

Even more biting was what the United Mine Workers District 50 News printed about AFL Pres. George Meany: ". . . a man whose ambitions far outweigh his abilities . . . His is the record of a cunning politician, artfully and tirelessly self-seeking."

Once in a while, a chemical union paper will growl at management: 'adamant and antagonistic company spokesmen," "the defiant and unjustified position of the company," "a semifeudalistic system in which the company dictated the terms of employment." More frequent are cartoons depicting well-fed employers who are rabidly opposed to unions, who sign paychecks grudgingly, and who fire their employees suddenly and capriciously. But this kind of name-calling is falling into disuse in the chemical unions, and is never seen in the ICWU paper except during a particularly bitter strike.

Hero Worshipping: One criticism that can be leveled against many union newspapers: their tendency to idolize the union chieftains. This is in contrast with the general "tone" of these papers, which otherwise are ardent in their praise of democratic ideals and strident in their denunciation of anything that smacks of totalitarian dictatorship. Singularly free of such build-ups is the *United Chemical Worker*, edited by George Crago (who had 30 years of newspaper experience before he joined Gas-Coke).

Recent examples of hero-izing in the chemical union papers:

 A two-page "spread" in the latest issue of the District 50 News, under the headline "Local 707 Pensioners Laud A. D. Lewis." (Lewis is president of District 50 and brother of John L. Lewis.)

 When ICWU Pres. H. A. Bradley returned to his office after a twomonth hospitalization, copies of the December issue of his union's International Chemical Worker were printed and ready for mailing. Pictures of the "welcome back" scene were hastily engraved and made up in a new front page replacing the one already printed.

Loyalty Ouestion: What management men might well bear in mind about union newspapers is this: they tend to make members feel that their first loyalty should be to their union, which is credited with having achieved wage increases and other gains for the employees; and that increases in wages or fringe benefits granted anywhere in the industry should be demanded at all other chemical plants, regardless of the individual company's financial or sales positions. Also, the union newspapers sometimes persuade employees to support political measures that the company might consider harmful. For example, United Gas, Coke & Chemical Workers (CIO) apparently wants the federal government to retain ownership of the 28 synthetic rubber plants now up for sale to private industry.

It's to the company's interest to get its side of such stories over to the employees. If employees are going to read in their union paper that a competitor is raising wages, and if the company can't afford to follow suit, best bet is for the company to explain the situation to employees promptly — preferably, before their union demands a wage rise.

All flesh is prone to error, and occasionally a union paper may—as management sees things—misinform its readers. When that happens, management may feel impelled to set the record straight—through a house organ, or by means of a bulletin board notice, or even by a letter to the editor of the union paper.

The union newspaper—enjoying the same freedom of the press that the First Amendment also guarantees to company magazines—is something that management has to live with. By and large, experience shows that honesty and goodwill on the part of the company can keep the union paper from straying too far from the path of reasonableness.

The Full Count

Industry will be pulling hard for Secretary of Commerce Weeks when he submits his revised census program for Congressional approval. Hanging in the balance are several full-scale censuses long-needed by the chemical industry, hampered by the comparative uselessness of now outmoded data. If Weeks gets what he wants from the House Appropriations Committee, there will be:

(1) A census of agriculture this year covering 1953.

(2) A census of manufactures in 1955 covering 1954.

(3) A census of business in 1955 covering 1954.

Actually, Commerce muffed the ball on original plans for 1954 censuses of business and manufactures (covering 1953) and is now willing to settle for 1955. But it may not get even that. The Appropriations Committee has already pared the Census Bureau's request for next year. So when Secretary Weeks takes his supplemental budget request before the legislators, he will be armed with strong recommendations of a nine-man committee of experts headed by Dun and Bradstreet's research director, Ralph J. Watkins. It may well take that-and more-to soften the Congressional axeswinging mood.

The full-scale census is not to be confused with the Census Bureau's considerably less-detailed annual survev of business and manufactures. The last complete manufactures census was taken in 1948, included 1947 data on 240,000 manufacturing establishments and 6,500 different products. Figures, broken down by industry and geography, were tabulated on employment, wages, expenditures for materials and plant, value added by manufacturing, shipping, etc. By comparison, the annual survey simply compiles data on a limited sample of about 45,000 plants.

Further: the last full business census, in 1948 and 1949, profiled statistics on 1,700,000 retail stores, 243,000 wholesalers, and 666,000 miscellaneous services ranging from theatres to motels. The annual survey reports figures on merely 84,000 businesses.

Other recommendations of the Watkins committee: (1) limit the 10-year population census to "principle items"; (2) a regular housing census; and (3) a regular five-year census of mineral industries (last one, 1938).

The fast-growing chemical industry hopes Congress will heed Watkins' proposals—for 1948 figures are less than pertinent in 1954.



CHEMICAL CHIEFS: Harry Pfann, director, commercial development (left), Karl Ruppenthal, technical supervisor, Fine Chemicals, L. D. Barrick, manager, Fine Chemicals, and W. K. Menke, vice-president, Chemicals, confer on new Spartanburg laboratory.

Marking a New Era

Scarcely pausing to take stock of its 1953 all-time sales records (\$52.2 million). Pittsburgh Coke & Chemical Co. this week is poised on the brink of a fresh round of chemical expansion. On tap: a program "of far greater magnitude than that completed at Neville Island (\$34 million);" a major invasion of other market areas-initially the Southern textile belt. Top executives now feel they're solidly cradled in chemical production at Neville Island. are beaming future plans at outlying districts in the belief that diversification (such as that already in effect at the Island) pays the biggest dividends. Proof of the validity of their belief is not hard to find. Over the past five or six years the company has sunk something near \$12 million into chemical facilities. (Included: a new activated carbon plant, a protective coating plant, phthalic anhydride units, an organic insecticide plant, plasticizer facilities.) And in that time total net sales jumped to something over \$50 million-40% of which is attributable to chemicals.

Still not completed (and expected to add considerably to the totals): additional facilities for activated carbon production. PC&C has a \$2.2-million tax write-off grant for the project, expects to start construction work sometime this year.

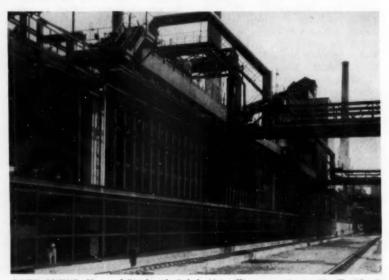
Stretching Out: But the major emphasis in chemical expansion, points out Kenneth Menke, vice-president,

will be on diversification-both in products and in market areas.

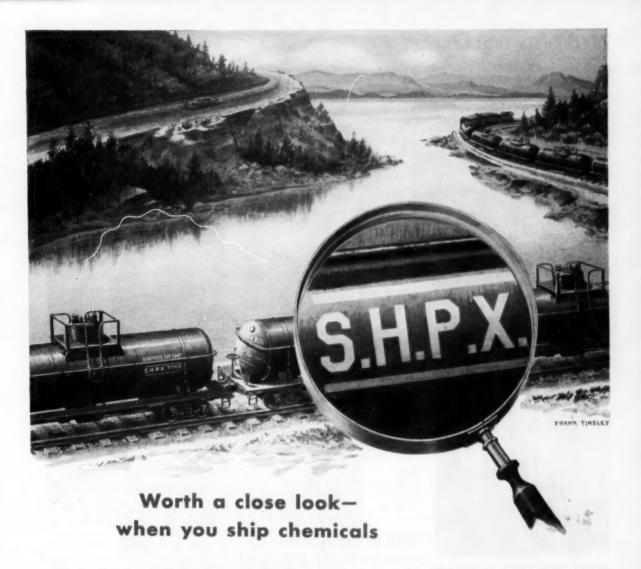
Spartanburg is an example of present company policy. "To think of leaving Neville Island is the natural next step for us," says Henry Hillman. "We've gone as far as we can there . . . and the chemical part of our business is the one that best lends itself to different geographic locations." Coal and iron are wedded to western Pennsylvania, but chemicals aren't tied down by location.

But policy planners are determined not to rush into production too quickly. Reason: there's still a sour note around Pittsburgh headquarters concerning the abortive plunge into DDT. Executives are frank to admit they're grateful they decided to stop construction, took a \$200,000 loss rather than follow through with construction plans.

"It would have cost us a good deal more in operation costs if we'd continued," notes Menke, Once burned



COKE OVENS: Heart of Pittsburgh Coke's \$34-million expansion at Neville Island.



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is enough; the mistake won't be repeated. Initially, Spartanburg will be just a sales service lab (to cost some \$100,000) for the Fine Chemicals Div. Then when Southern textile markets have been charted, industry problems considered, actual production decisions will be made.

"Any way we move will be on a complete basis," states Hillman. The company's been building a firm base in chemical management slowly, has felt it a first major step in protecting its present chemical business as well as a necessary preliminary to expansion. Further: the company is sold on the idea of offering a complete line of products in any field.

Research teams have increased 10fold over the past 6 or 7 years; each



DISTILLATION UNITS: Renovated for greater output of chemicals.

division currently has its own research section, and there's a nondivision research team specifically charged with work on possible new chemical products.

Hillman and Menke both agree they're very interested in petrochemicals. But Menke qualifies: "We don't think this is the right time to push it. There are too many others rushing into the field right now." Further: "Of course it's impossible for petrochemicals to attract small marginal producers like the agricultural chemicals did... but we still feel we should put our emphasis elsewhere now." The idea is on the docket, though, simply awaits the right moment.

The move to Spartanburg, however, won't influence petrochemical expansion, has nothing to do with temporary shelving of plans. "It's just," as Hillman says, "that PC&C's experience with agricultural chemicals has

made us wary of plunging into any field where overproduction (and the resulting price drops) may cause us trouble." Since everyone else is jumping in with seven-league boots, PC&C is willing to let others do the pioneering, will dive into the market later.

Meanwhile stockholders are content. Earnings per common share have jumped from \$1.23 in 1946 (the year the big push in chemicals began) to \$4.08 in 1951 and \$2.12 in 1952 (depressed by the steel strike). This year the take should soar even higher in line with a 35% increase in sales.

Total assets of the company, thanks to recently acquired chemical facilities, have quadrupled in 8 years—from \$15.8 to \$61.7 million.

Individual chemicals that gained most in 1953 over 1952: plasticizers, which turned in a tidy 100% rise in sales; activated carbon, which picked up 50%. In addition the Fine Chemicals Div. has recently added a large number of high quality dyestuffs.

Casting a confident eye on future operations, Menke and Hillman (the "push behind chemicals" at PC&C) believe the unsettled market for chemicals has now become stabilized enough to allow for "substantial returns before the year is out" on the effort spent strengthening the company's merchandising organization. From any angle, it looks as if PC&C is headed for a major drive on chemical markets.

Call of the North

Greater activity of both Canadian and U.S. open-end investment companies in the sale of shares in oil, iron and uranium ventures and other listed Canadian stocks in the U.S. is heralded by a proposal about to be adopted by the Securities & Exchange Commission. Reason: Canadian investment companies will be able to offer their securities for sale in the U.S. if SEC's proposed regulation is adopted.

SEC proposes to make Canadian firms meet the requirements of the Investment Company Act of 1940, would approve registration of a company automatically, without a formal hearing, if the Canadian firm did so.

The rigid conditions are spelled out, according to SEC Chairman Ralph Demmler, and would insure jurisdiction of U.S. courts and SEC to safeguard U.S. shareholders. Critical requirements:

 All assets must be kept in a U.S. bank.

• A majority of directors and officers must be U.S. citizens.

· The corporate charter and by-



SEC'S DEMMLER: His agency moves to quicken flow of U.S. capital to Canada.

laws must contain the substantive parts of the Investment Company Act, which may be enforced either in Canada or in the U.S. by shareholders or SEC.

No Canadian firm has ever registered under the 1940 act, but a hearing has been held on the application of Resources of Canada Investment Fund and another w.s held this week on a new application by Scudder Fund of Canada Ltd., a Canadian firm organized by Americans.

Canadians, however, may not be as interested in the new SEC rule as Americans who want to set up Canadian companies to get tax advantages. In the future, firms organized under Canadian law by U.S. interests, such as the Scudder Fund, are most likely to use the rule. Here's why:

A Canadian company has an option under Canada's tax law by which dividends from its Canadian investments are not taxed by Canada. And it can accumulate capital gains, which Canada does not tax. Tax experts say gains from purchase and sale of securities by a Canadian investment firm would be considered capital gains.

And if it operates as a nonresident foreign corporation under U.S. laws, its income earned outside the U.S. is not taxed wheth r or not it is currently distributed. Its capital gains, regardless of source, would not be taxed by the U.S.

Responding to President Eisenhower's encouragement of U.S. foreign investment, SEC has devised its new rule to make investment in Canada easier. For the Canadian chemical industry, this could mean broader infusion of U.S. dollars.



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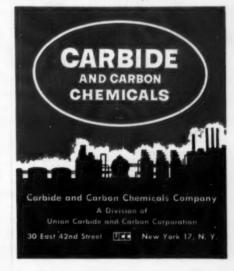
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STANOLIND'S BULLARD: He offers RFC a proposal on Carthage Hydrocol.

Take-Over Imminent

Moving to a decision on whether it will take over ill-fated Carthage Hydrocol, Inc., organized to produce synthetic fuels and chemicals from natural gas, Stanolind Oil & Gas Co. this week is busily evaluating findings of Lummus Co.-the firm it retained to survey the Carthage plant at Brownsville, Tex. A prime Stanolind interest is its own \$14-million plant. next door to Carthage, which is designed to process the stream of byproduct chemicals from Carthage. It has been idle since Carthage closed down last June.

Best bet: a decision will come by the end of March when Stanolind's present option with the Reconstruction Finance Corp. expires.

Stanolind's Offer: Here's the package Pres. E. F. Bullard proposes to the RFC: if it acquires Carthage, an enterprise in which \$50 million has already been invested. Stanolind will pay off the \$17.5 million still owed to RFC by Carthage. And it may put another \$20 million into the Brownsville plant to smooth out process difficulties that have plagued the plant since its start-up in 1950.

The alternative: unless Stanolind picks up its option, RFC will foreclose its \$17.5-million first mortgage on Hydrocol. Then the Treasury, which takes over all RFC assets in June, will inherit the Brownsville plant. (RFC loaned \$18.5 million to Carthage, has been repaid close to \$1

Agreed to Cooperate: Present owners, who hold \$31.5 million of Carthage stock and notes, are all willing to let Stanolind take over. Biggest of these, with 48.82% of the stock, is the Texas Co.

United Gas Corp., with 11.6% of the stock, plans to write off its \$3,-775,808 investment as a complete loss. Another owner, Niagara Share Corp. (an investment company), during 1953 sold its 6% promissory notes from Carthage, with a face value of \$1.3 million, for \$4,000-less than one-half cent on the dollar. The purchaser also has an option running to March 31 to buy an additional \$1.3 million of notes from Niagara, plus its 19,516 common shares in Carthageall for \$6,000. (Niagara has been carrying notes and stock at a nominal value of \$1 since June 1952.)

Two earlier holdouts against sale of Carthage-Stone & Webster Engineering, Inc., and Forest Oil Corp., both stockholders-have now agreed to Stanolind's proposal. Other private backers, La Gloria Corp., Gulf State Oil Co., and Chicago Corp., have also

assented.

Snagged Process: If Stanolind takes over, one of its first tasks will certainly be to straighten out the operating processes at Brownsville. That's the basic reason it called in Lummus to join its own engineers in fine-combing the plant. In addition, Hydrocarbon Research, Inc., the company that, jointly with the Texas Co., licenses the basic Hydrocol process to Stanolind, is investigating the process with an eye to redesigning equipment.

Hydrocarbon, reportedly, is con-centrating on the two chief trouble spots in the process-the gas generators and the synthesis reactors. In the generators, natural gas is partially oxidized with atmospheric oxygen to produce synthesis gas (carbon monoxide and hydrogen). In the fluidized-bed reactors, the synthesis gas is converted into synthetic fuels and by-product chemicals.

Chemicals Galore: In effect, the Brownsville plant is designed to convert natural gas and oxygen into synthetic fuels and chemicals.

Besides 7,000 bbls. of synthetic fuels, mostly gasoline, the Carthage plant was to produce daily 300,000 lbs. of oxygenated compounds. In its neighboring plant, Stanolind was to separate these, process them to get commercial quantities of acetaldehyde, acetone, acetic, propionic and butyric acid, and methyl through amyl alcohols. In turn, U.S. Industrial Chemicals was to package and ship these products from its plant next to that of Stanolind at Brownsville. If Stanolind decides to step in, this flood of chemicals may still burst forth.

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UNIONIST KNIGHT: For chemical and oil workers, a single pay scale?

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Ambitious Aims: For the chemical industry in the U.S., increasing importance looms this week in efforts to establish a big, new "International Oil & Chemical Workers Union" (CW, March 6). For one thing, it looks more and more as though the intent is to bring thousands of chemical and petrochemical employees into the new union. And if the new union succeeds in its attempt to represent the majority of hourly paid workers in oil, chemical and allied industries, the tendency will be for the union's leaders to strive to pull chemical wages up to the level of petroleum pay rates.

Apparently confident that membership of 31 unions represented at the organizing conference last month will ratify the proposed constitution by July 1, Chairman O. A. (Jack) Knight of the convention committee declares that their present membership of 212,440 is "just a starting point"; he feels that there are "more than a million workers who can be organized to fit into our union." Since there are only about 207,000 persons engaged in petroleum refining, and fewer than 277,000 persons (even including contract construction employees) in oil and gas production, it's obvious that Knight plans to dip deeply into the ranks of chemical workers.

If the new labor group becomes a reality and begins its expected drive for industry wide bargaining, there'll be pressure to equalize oil and chemical wage rates. Latest figures on average wages in these industries: oil and gas production, \$2.29/hour; petroleum refining, \$2.37/hour; chemicals

and allied manufacturing, \$1.85/hour.

One point not to be overlooked by management men who now have labor contracts with United Gas, Coke & Chemical Workers (CIO): Knight, who's president of the Oil Workers International Union (CIO), is also a vice-president of the CIO and a supporter of CIO Pres. Walter Reuther. It's not likely that Knight would have worked so hard to get the organizing conference to approve the plans for an oil and chemical union if Reuther had asked him to refrain from stepping on Gas-Coke's toes.

Labor Bills Abound: In Washington and in various state legislatures, law-makers are looking at labor. First step by the Republican 83rd Congress toward revision of Taft-Hartley: The House Labor Committee is recommending a provision that unions may not be held responsible for unauthorized actions of individual members. Thirteen other proposed amendments are pending.

In Michigan and in Baltimore, proposals have been made for enactment of fair employment practices codes that would forbid discrimination against job applicants and employees on racial or religious grounds. Although Baltimore likes to consider itself a Southern city, its FEPC plan appears to have a better chance of being adopted than the one in Michigan, which is well north of the Mason-Dixon line.

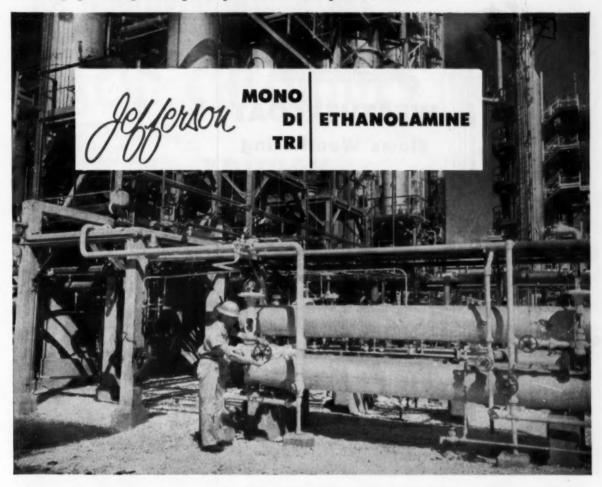
Mississippi has enacted a right-towork law prohibiting the union shop, but a similar bill has been sidetracked in Kentucky. The latter measure is supported by Associated Industries of Kentucky, which says it will continue to press for passage of the bill. Also pending before the legislature at Frankfort: A so-called "little Wagner Act" that would empower the state commissioner of industrial relations to certify the results of representation elections.

And in Virginia, legislators are considering a bill that would "tighten up" the present right-to-work law.

Labor Litigation: While new laws are being propounded, the courts are busy defining union and management rights and responsibilities under existing laws:

What was described as an attempted use of secondary boycott in an effort to win union recognition at a paintmaking plant has been halted through a consent order issued by the National Labor Relations Board. This was at the Los Angeles plant of Bishop-Conklin division of Devoe &

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Raynolds, and involved the AFL Teamsters and Painters unions.

An Oregon circuit court has knocked down a 1953 antipicketing law as unconstitutional, and an appeal to the state supreme court is expected. Judge O. J. Millard says the requirement that only a certified union may picket is a violation of the "freedom of speech" amendment. Ruling against the labor unions was Kentucky's Court of Appeals, which holds that drivers for trucking companies may not refuse to cross picket lines in making delivery or pickup of merchandise.

The International Chemical Workers Union (AFL) has wiped two civil suits off its slate. A circuit court in Chattanooga, Tenn., dismissed the \$150,000 suit of a "disgruntled former member" who charged that ICWU Local 87 had failed to process his grievance and had slandered him. At Louisville, Ky., the ICWU has called off its \$225,000 libel suit against a rival union following a formal apology by the Neoprene Craftsmen's Union (Ind.); NCU officials publicly retracted a slur about "racketeering."

RFC's New Barometer

Chemical management this week will have a new business indicator—closely tied to chemical process industry—to help in planning operations. The Reconstruction Finance Corp. has issued a monthly estimate of how much synthetic rubber it will produce in the coming three months. The figures, while not the first such estimates that RFC has put out, are, by far, the most sensitive.

The new estimates are made possible by the forward-order system set up by RFC last November. This way, big rubber consumers must submit firm orders three months in advance. These orders cannot be cut back, and can be increased only by paying a

With such orders on its books, RFC can make its estimates more accurate. Totals include three types of sales: (1) firm purchases of general-purpose rubber by large consumers; (2) an estimate of how much small consumers will buy; and (3) an estimate of how much GR-S latex should be sold.

RFC recently revealed it will produce 203,000 long tons of GR-S polymers in the first five months of 1954. It estimates sales at 194,000 tons, Its inventory, as of Jan. 31, was 80,289 tons.

In about three weeks, RFC will make its estimate for June, and—if needed—revise the first five months' figures.

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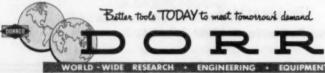
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In for Overhaul

After months of patient plodding, the House Ways & Means Committee last week completed its section-bysection proposed revision of the nation's tax laws.

Outlook: not many individual taxpayers will feel the direct effects of revision, but nearly every businessman will benefit from changes in tax laws that have long proved irritating or an outright detriment to expansion.

Specifically the tax revision bill would allow faster tax amortization of capital investment, and provide for more lenient treatment of research and development costs, income earned abroad, retained earnings, business losses, reserves for expenses, reorganization, stock dividend income. Similar revisions have often been attempted in past sessions of Congress, but have never cleared the committee rooms. One reason: inadequate or unenthusiastic support from the White House.

Now, however, backed by President Eisenhower and his top aides (particularly Arthur Burns, chairman of the Council of Economic Advisers), the bill appears to have a good chance of getting prompt approval in both the House and the Senate.

Biggest single break in the tax revision bundle for chemical companies will probably be the easing of depreciation rules on plant expansion, new equipment expenditures. Under the new plan, companies would be allowed to write off two-thirds of the value of the plant in half its useful life, freeing funds (hitherto tied up in straight line deduction) for purchase of still more capital goods. The move, as Burns points out, will be a direct incentive to reinvestment, should shore up any decrease in capital expenditures this year.

Planned As Relaxations: Further provisions of the bill encourage business growth, allow companies to retain a greater percentage of profits:

• A new rule authorizing written agreements between taxpayers and tax collectors as to the useful life and rate of depreciation of assets. Revenue officials would be instructed not to argue about the proper useful life of an asset—unless it differed from their own estimate by more than 10%.

• Loss carryback allowances, altered by a new amendment permitting businesses to apply losses against profits of the two preceding years—instead of the single year now allowed. The move would prove a boon to businesses that operate on a narrow cash margin, might mean the difference



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BURNS: Sees tax changes as a major boost to corporate expenditures.

between solvency and bankruptcy.

• A new slant on research costs, implemented by specific statutory authority for treating research costs as an expense. In addition: the Tax Ways & Means Committee would give companies a choice of charging off such costs in the year incurred or deferring the expense for five years or more—when presumably profits might be greater.

• Extension of leniency on income earned abroad—granting U.S.-owned enterprises a tax cut of 14% (in the conventional 52% corporate tax rate), in a manner similar to that now afforded U.S. corporations that do most of their business in the Western Hemisphere.

• Freedom of certain types of reorganizational changes from taxation. A corporation, for example, would be able to make a tax free distribution of stock in another corporation it controls without incurring additional tax charges.

 A new interpretation of the treatment of partnerships, whereby the partnership could choose to be considered as an entity, rather than as a mere agent of the partners.

Designed to Tighten Up: At the same time, the committee would plug up several loopholes in present U.S. tax laws. Major changes:

• A formula to put teeth in the existing law concerned with disallowance of tax benefits "to companies considered to be buying a tax loss." The new system would leave all such decisions up to the Treasury Dept., which would determine the basis of the property, figure the tax benefits,

compare the figure obtained against the purchase price of the property. A substantially lower total would be interpreted as "a purchase made in an attempt to avoid income taxes."

 Stricter restriction on collapsible corporations—a move designed to prevent the organization of "one-shot" companies by backers eager to take advantage of capital gains taxes rather than income rates on earnings.

If (and Washington opinion holds that the climate is encouraging) the bill goes through as it stands now, chemical companies' earnings statements should stand to benefit considerably in the months ahead

LEGAL.

Antitrust Action: Last week saw two developments in the dwindling antitrust litigation against Du Pont. At Wilmington, U.S. Judge Paul Leahy signed a formal order dismissing the government's complaint in the cellophane suit (CW, Jan. 16), giving the government 90 days in which to appeal. In Chicago, U.S. Judge Walter LaBuy received the final papers in the suit against Du Pont, General Motors and U.S. Rubber, and can begin formulating his decision.

Predatory Pricing': Don't write off the "fair-trade" battle as having been settled; it's still going strong, throughout the nation. Hot spot of the fight this week is New Orleans, where various drug manufacturing firms are trying to make a big retail concern adhere to "fair-trade" price schedules.

On March 24, one of those pharmaceutical concerns — Hoffmann-La-Roche (Nutley, N.J.)—will take the retailer into U.S. District Court for a hearing before Judge J. Skelly Wright, who last year had granted an injunction against cutting prices below resale minimums. Hoffmann-LaRoche now says it knows of at least four instances in which the retailer, Schwegmann Bros., has sold Hoffmann-LaRoche products at prices lower than those called for in "fairtrade" contracts. The Jersey company wants Judge Wright to back up his 1953 decision by holding Schwegmann Bros. in contempt of court for disobeying the order.

And in Indianapolis last week, U.S. Judge W. E. Steckler upheld the constitutionality of Indiana's 1937 "fair-trade" act. The court agreed with the argument advanced by Sherwin Williams Paint Co. that the law protects the public from "predatory price cutting."

So far, it appears that the "fair-

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Flash Point C.O.C.	
Fire Point	
Referentive Index at 5	20°C 1.528

Chemical

Acid Number Less than 1
Supanification Number Less Hun 2
Ash,
Indine Value (WIJS)120
Indine Value (Corrected for
Substitution)
Bromine Number
Melecular Weight1100
Double Sends For Mal.
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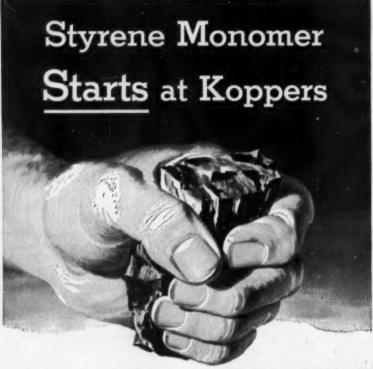
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KOPPERS COMPANY, INC. Chemical Division, Dept. (W-3134, Pittsburgh 19, Pennsylvania



trade" advocates have the upper hand in this ruckus, but there's plenty of fight left in the opposition. Example: also last week, Nebraska's 1937 "fair-trade" law was declared unconstitutional by state district Judges Jackson Chase and James Patton in Omaha. They held that the measure was an "improper and unauthorized exercise of the police powers of the state.'

The arch-enemy of "fair-trade" laws, John Schwegmann, Jr., is pleading for public support in his crusade. He's telling the people that "the 50% markup guaranteed by 'fair trade' is not only legalized stealing, it is extremely shortsighted merchandising."

Present outlook: the dispute may



JUDGE WRIGHT: He's being asked to back up his 'fair-trade' ruling on drugs.

be too deep-seated for the U.S. Supreme Court to settle, and the voters themselves may have to make the ultimate decision.

Tax Hunger: Manufacturing companies in Kentucky are finding that the Blue Grass State is a sturdy party to deal with in tax matters. Two firms so far are winning their tax suits in state courts, but it appears that the state government isn't giving up too readily.

In one case, the state is asking Jefferson County circuit court to reverse a county court ruling that would dismiss the state's \$250,000 tax action against Standard Oil of Kentucky. In another case, the state Court of Appeals maintains that Clayton & Lambert Mfg. Co. (Louisville) is entitled to an \$89,000 deduction that has been contested by the Kentucky Tax Commission.

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SINDRI FERTILIZER: Asia's largest producer of nitrogenous fertilizer.

FOREIGN. .

Fertilizer/India: Included in the U.N. Food and Agricultural Organization's world report on fertilizers: proposals to erect new nitrogen plants in India to meet expanding markets in the Near East. Reason: Asian farmers, in recent months, have shown eager interest in exploring the possibility of proper soil feeding-spurred in part by the government's recent promise to "turn further expansion in the fertilizer field over to private enterprise." Meanwhile, production at Sindri (see cut) is being tuned to full capacityto meet Indian demand this year.

Synthetic Rubber/Germany: Supported by the West German government, Chemische Werke Huels (a Farben successor company) will build a synthetic (buna) rubber plant with an annual capacity of 30,000 tons. Plans call for the use of alcohol (instead of the costlier acetylene) as a basic raw material.

Polyethylene/Australia: [mperial Chemical Industries of Australia and New Zealand Ltd. has decided to manufacture polyethylene in Australia -but the project will probably take several years to mature. It's expected that capacity of 5,000 tons/year will be planned; cost may run to \$8.5 mil-

Imports/West Germany: The West German government has scrapped trade restrictions with the dollar area (U.S., Canada, South and Central Sodium Polyphos

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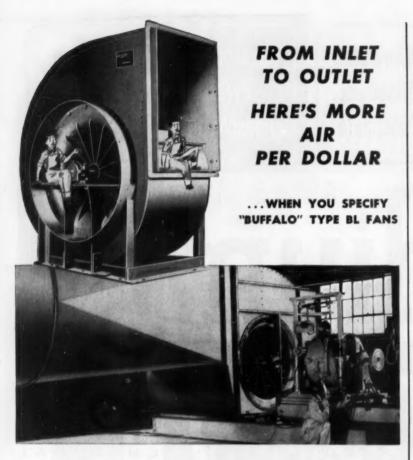
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America) on 2,000 items, including some chemicals. In 1953, Germany purchased \$571 million of goods from the dollar countries, should hike the value considerably this year as a result of its sweeping liberalization.

Sulfur/Iraq: Texas Gulf Sulphur Co., which agreed with the Iraqi government to undertake exploration work for sulfur in Iraq, has further agreed to build a rail line from the mines to the Iraqi State Railways—thus connecting Northern Iraq with the Mediterranean coast in Syria and Lebanon. Reason: Initial exploration indicates large quantities of sulfur in the area, should enable Iraq to realize a yearly income almost equal to its oil royalties—some \$150 million.

Swiss-German Cooperation/Chile: A partnership of Swiss and German firms plans to set up a heavy chemical industry in Chile, utilizing the country's vast mineral, waterpower resources. The Chilean government promises to aid the project, will afford all necessary facilities for importing machinery, and for the entry (into Chile) of a large number of German and Swiss technicians. First to be constructed: a cellulose plant, in the heavily wooded Valdivia province.

KEY CHANGES.

Harry B. McClure, to president, Carbide and Carbon Chemicals Co., New York.

J. G. Davidson, to chairman, Carbide and Carbon Chemicals Co., and member of the Appropriations Committee, Union Carbide and Carbon Corp., New York.

Joseph Boyce, to general manager, Vitro Manufacturing Co., Pittsburgh.

Maurice F. Dufour, to assistant vicepresident, Freeport Sulphur Co., New York.

Frank F. Black to sales manager, Chemical Sales Div., Chas. Pfizer & Co., Brooklyn.

J. Joseph Kelleher, to sales manager, Explosives Dept., Hercules Powder Co., Wilmington.

Vernon R. Childress, to manager, market research and product planning, Chemical Materials Dept., General Electric Co., Pittsfield, Mass.

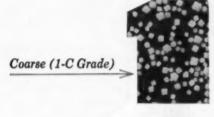
Truman Collins, to director, Crown Zellerbach Corp., San Francisco.

Harold R. McCleary, to manager of pigments research, American Cyanamid Co., Bound Brook, N. J.

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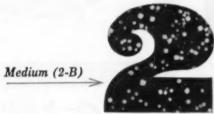
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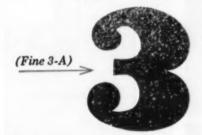
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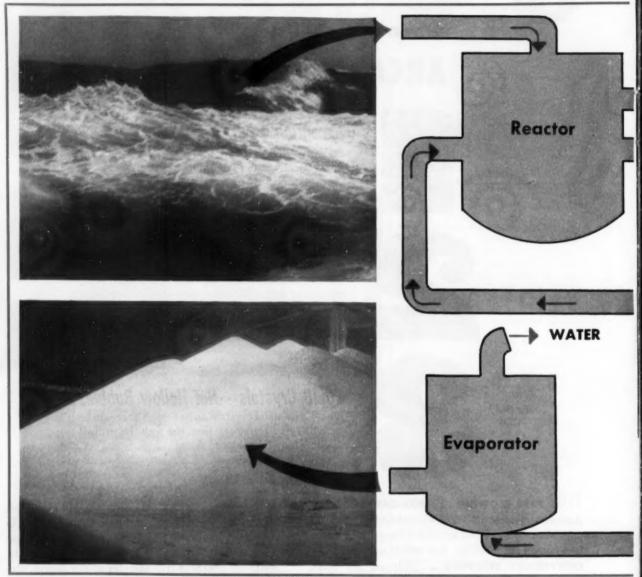
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PRODUCTION .



ROUTE TO NITRATE: Not science fiction but solid research and commercial promise underlie latest effort for taking . . .

Fertilizer from the Sea

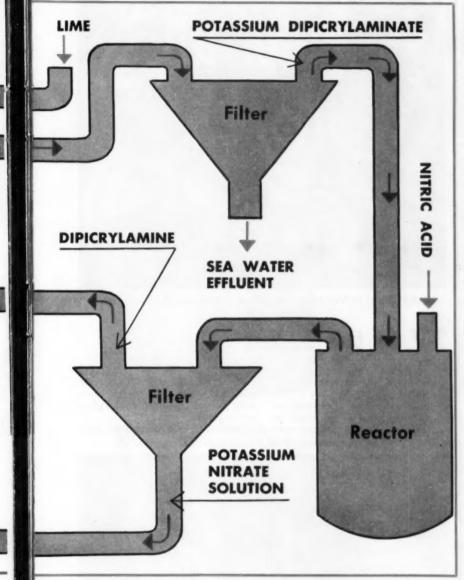
Extracting the vast deposits of mineral resources from the sea has been one of the favorite topics of science fiction. And, in addition to forming the basis for a few commercial operations, it's been the subject of a lot of serious research. A portion of that research is starting to pay off in a pilot plant being built at Ijmuiden, Holland, on the North Sea near Amsterdam. Scheduled to start up in April, the plant will turn out potassium ni-

trate-from sea water and nitric acid.

The pilot plant is a joint venture—of Norway's Norsk Hydro and Holland's Mekog (Maatschappij tot Exploitatie van Kooksovengassen)—which has been dubbed Norduco. It will turn out 1,650 short tons/year of potassium nitrate. In terms of the two nations' requirements for potassium fertilizer, that's small; for in 1952 Norway imported 45,000 tons of potassium fertilizer, Holland. 200,-

000 tons. But, if the process lives up to expectations, the pilot plant will be scaled up. Eventually, both participating firms hope, the total potassium needs of both nations can be met with sea-derived material.

It will be some time, if ever, before U.S. chemical men get a chance to buy any of the plant's product. For them, the significance of the plant lies in the process and the opportunities it may hold for exploiting the



minerals in the sea. And it's not impossible that the credits for minerals from the sea could make the idea of converting sea water to fresh water (for processing) economically attractive.

Process Progress: Both the Norwegian and the Dutch firms are chary about giving details of the process. Norsk Hydro, however, freely credits Jacob Kielland, director of its research lab, with doing the original work on the process. And Kielland, along with Wilhelm Fleischer, has patented processes (U.S.P. 2.258,381; Canada P.

400,239) that probably give the key to the whole project.

Kielland and Fleischer found that potassium, rubidium and cesium salts of dipicrylamine are insoluble in water while the sodium, lithium, magnesium and calcium salts are readily soluble. Then, according to the familiar Le Chatelier-Braun principle, when dipicrylamine is added to sea water, it will react to form the insoluble potassium dipicrylaminate. They found they could form the salt without using any substantial excess of the dipicrylamine. In fact, they

tound a good conversion rate even when they used the reagent in slightly less than the amount theoretically necessary.

Too, the dipicrylamine could be precipitated from the product simply by adding a suitable acid. And, since nitric acid is one of the acids that can be used, this reaction is the one that makes the process feasible. For nitric acid not only regenerates the expensive dipicrylamine, but it also forms potassium nitrate—ready made for plant food.

In the Works: Fitting the clues from the patent literature in with the description of the process as revealed to the press by Dutch and Norwegian company officials, observers feel that pilot plant operation will probably take place along these lines: Sea water is passed through sand filters and is mixed with a soluble salt of dipicrylamine (probably the calcium one, which can be made from the dipicrylamine and lime). The potassium dipicrylaminate precipitates, is filtered off and the effluent discharged back to the sea. The wet precipitate is reacted with nitric acid to form the highly soluble potassium nitrate and insoluble dipicrylamine. It's filtered again and the nitrate solution evaporated while the dipicrylamine is recycled.

Present knowledge of the process leaves a lot of questions unanswered. It's not clear, for instance, whether there are any temperature limitations on the reaction. And since the potassium (oxide equivalent) content of sea water is of the order of 1 lb./245 gal., the necessity for heating the water even slightly might push costs out of economic bounds.

Second Start: Actually, the pilot plant in Holland will mark the second attempt on the part of Norsk Hydro to extract potassium from the sea. Before the war it built a pilot plant at Heroya in Norway for that very purpose. An Allied bombing, unfortunately, made the plant inoperable.

The Dutch interest, though more recent, has nevertheless been just as intense. Mekog had worked on the project independently for over a year. It then decided to contact Norsk Hydro with the idea of pooling their efforts.

The merits of the coordinated work won't be known in full until the pilot plant is in operation. But whatever the outcome, both firms make it clear that any credit will be shared equally.



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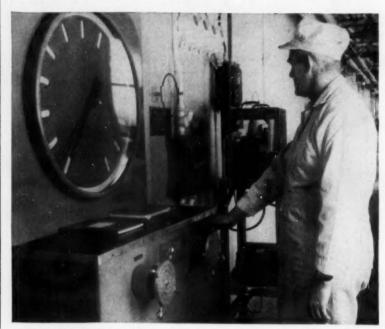
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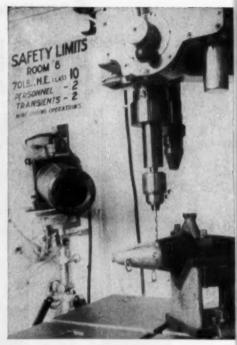


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HEADQUARTERS FOR SCALES



BY REMOTE CONTROL, a shell is locked in vise and drill positioned.

ing ground last week, the CW camera saw some of the reasons why. There, television cameras monitor the loading, assembly and disassembly in three of seven workrooms in the building known as Magazine 700. Previously, for example, all drilling and sawing involved in taking shells apart or putting them together had to be done manually-and on the dangerous side of the wall. In case of fire, the worker had to start the extinguisher from inside the bay. Now, the work is done by remote control and the worker can watch the whole operation from a safe distance on his television

Should a fire occur, the operator gets his first warning of it on the TV screen. He can then pull the cord to operate the extinguisher from a safe distance.

And, instead of going through the plant to observe an operation, Plant Manager Franklin Jones has a master set in his office. Sitting there, he can watch almost any hazardous operation going on in the building.

Not many plant managers have to cope with "live" projectiles, but there are many places where a closed circuit television system would fit in nicely. It looks as though industrial television is due for a bigger role in the process industries. It's always better to let a machine assume the operative hazards.



these and many other vinyl plastic products enjoying an increasing consumer demand—are made with economical and effective

(di-iso-octyl phthalate)

The fastest growing plasticizer used in vinyl sheetings, extrusions and plastisols.

D-I-O-P is available from leading plasticizer manufacturers under their brands featuring individual characteristics.

ENJAY does not manufacture D-I-O-P or any other plasticizer but supplies the uniform high quality ENJAY ISO-OCTYL ALCOHOL from which D-I-O-P is made. Ask your supplier of plasticizers for D-I-O-P.



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Industrial Odorants are compelling sales aids... important tools for the modern manufacturer with a merchandising point of view. If you manufacture the above or related items, the D&O Industrial Odorants Labs can give you a powerful ally for increased sales. Consult D&O.

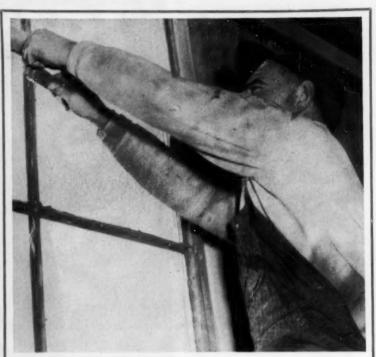


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Safety in Plastics

THE UNUSUAL PART about the windows shown being installed at Emery Industries' Cincinnati plant is that they're not glass but plastic. The plant houses a process that uses hydrogen and the reason for

the plastic windows is that should a blast occur, the flexible plastic panes will bow and pull away from the casing. A product of Eastman's Tenite butyrate, the panes were fabricated by General Plastics.



LOOKING FOR NEW???

LOOKING FOR MORE???

LOOKING FOR BETTER ???

LOOKING FOR IMPROVEMENT ???

IT PAYS TO SEE VICTOR

STABILIZERS

TYPES — Stabilizers 53, 85, 21, and 6162X. Stabilizers 53 and 85 are organic phosphate salts, supplied in soft paste form. Stabilizers 21 and 6162X are liquids used in solvent films, as well as in organosols and plastisols.

USES: Light stabilizers for vinyl plastic films, and coatings. Used in organosol, latex, plastisol and solvent formulations.



Tanning is fine for sun-bathers. But for vinyl plastic, just the opposite is true. Exposure to sunlight caused some of these plastics to discolor. Since these products were ideally suited for upholstering furniture, automobile seats and for auto seat covers, vinyl makers searched for a solution to the problem. Victor light stabilizers (in paste, powder and liquid form) provided the answer. The problem of color deterioration due to light was eliminated. It pays to see Victor.

TETRAPOTASSIUM PYROPHOSPHATE

Tetrapotassium pyrophosphate is available as a white powdered or unmilled globular material.

USES: Builder and clarifier of liquid soaps. Dyeing compounds. Washing compounds. Boiler water treatment. Synthetic rubber.



The development of synthetic rubber on a large-scale basis helped win a war and built a new industry. Originally intended as a temporary substitute for pure rubber, synthetic rubber today proves far superior to the natural product for many purposes. Both Victor formic acid and Victor potassium phosphates are used as chemical intermediates in the manufacture of rubber. It pays to see Victor.

PHOSPHORUS OXYCHLORIDE

Phosphorus oxychloride is a water-white to slightly yellow liquid whose vapors are very irritating. It decomposes in water to yield phosphoric and hydrochloric acids, and is chemically very reactive.

USES: Intermediate in production of organic chemicals. Chlorinating agent. Catalyst.



A New Spark for Cars

Hailed as the greatest gasoline development in three decades, motorists are learning about a new phosphate additive for gasoline. This new discovery is claimed to give up to 15% more power, 150% more spark plug life, plus an increase in gasoline mileage. Victor phosphorus oxychloride is an intermediate used in this great development and plays an important role in the production of the final product. And so it goes. Throughout industry, phosphates take an increasingly versatile and important role. And when it comes to phosphates . . . it pays to see Victor.

DIAMMONIUM PHOSPHATE

Diammonium phosphate is a brilliant white, crystalline product, mildly alkaline in reaction. Meets all U. S. Pure Food Law requirements.

GRADES: Crystalline, powdered F. F., and denti-

USES: Ammoniated dentifrices. To control the pH of soda crackers. (U. S. Pat. 2288118). Catalyst for urea and melamine resins. Chrome dyeing of wool. In the manufacture of calcium phosphates for use in phosphors. Flameproofing of paper, wood, textiles, and vegetable fibers. Prevents afterglow in matches. Plant nutrient solutions. Manufacture of yeast, vinegar, yeast foods, bread improvers, and alcohol. Acid cleaner for metal. Ingredient in glass and vitreous enamel.



Top Aide to Bread

To make bread you need yeast. And to grow yeast, Victor ammonium phosphate or Victor phosphoric acid are used. These Victor products encourage or feed the actual growth of the yeast culture. In the production of your daily bread, another Victor phosphate, monocalcium phosphate, acts as a bread improver and prevents "rope" . . . an objectionable bacteriological growth. Thus Victor products and services aid another important American industry. It pays to see Victor.

MONOCALCIUM PHOSPHATE. ANHYDROUS (Heat-treated)

TRADE MARK-V-90®

(U. S. Patents 2160700 and 2160232: Canadian Patents 388809 and 388810)

V-90 is a fine, white, free-flowing powder, each particle of which has a thin, continuous coating of a relatively insoluble phosphate which delays solution when aqueous liquids are added. This makes possible a delayed leavening action.

USES: Manufacture of self-rising flour, self-rising corn meal, pancake flour, prepared mixes, household baking powder, phosphated plain flour, and bakers' angel food cakes. As an ingredient of baking preparations. (U. S. Patents 2160700-1 and 2160232-3)



We Like About the South

Umm-m! Smell that corn bread! But even in the South, corn bread often had a tendency to be heavy and soggy when the sour milk and soda used for leavening did not properly balance each other in acidity and alkalinity. Today, however . . . thanks to new selfrising corn meal made with Victor's V-90 . . . corn bread is unfailingly feather-light and tasty every time. Self-rising corn meal sales are booming as the direct result of Victor's anhydrous monocalcium phosphate (V-90). It pays to see Victor.

TRICALCIUM PHOSPHATE

Tricalcium phosphate is a white, crystalline, tasteless solid, which complies with all Federal and State Food Laws.

Tricalcium phosphate NF conforms to National Formulary IX, specifications effective November 1, 1950. Over 95% will pass through a 200 mesh screen. Conditioner for salt, soda, sugar and sulphur. Food enrichment.

Tricalcium phosphate-Victor. A polishing agent for tooth paste and tooth powder. Accepted and listed by the Council on Dental Therapeutics of the American Dental Association

Tricalcium phosphate-granular. Sized so that substantially all passes through a 14 mesh and on a 50 mesh screen.

When it Rains, They Pour

One of life's petty annoyances is a shaker of salt that won't pour. To prevent caking of salt, soda and powdered sugar, most manufacturers now add small quantities of tricalcium phosphate. Calcium phosphate absorbs moisture and prevents caking. Victor tricalcium phosphate is an excellent conditioner and permits products to remain free-flowing without affecting normal flavor. If you have a caking problem . . . it pays to see Victor.



Phosphoric acid is a clear, colorless, sparkling liquid. All grades meet the requirements of the Federal and State Pure Food Laws.

Concentrations: 75%, 80%, 85% N.F. 115% (Polyphosphoric)

USES: Manufacture of yeast, sugar, soft drinks, imitation jellies, gelatin, and pharmaceuticals. Rustproofing, engraving, railroad car cleaning, refining oil and gasoline, preserving silage. Weighting silk, and dyeing textiles. Chemical polishing and electro-polishing metals, bright-dip baths for aluminum. Manufacture of phosphates, dental cements, glue, ceramics, glass, metal treating compounds, explosives, and fertilizers.



What Makes "Pop" Popular

Cola drinks, soda or just plain "pop." Call them what you will but the great popularity of most carbonated beverages is due in part to the tart, tangy taste imparted by just a "touch" of food grade phosphoric acid. The remarkable purity of Victor phosphoric acid accounts for the fact that it acidulates millions of bottles of soft drinks. It pays to see Victor.

SODIUM ACID PYROPHOSPHATE

TRADE MARKS — Victor Cream, Perfection, B. P. Pyro

Victor sodium acid pyrophosphates are white powders whose purity meets the requirements of the Federal and State Pure Food Laws.

USES: Baking acid for doughnut flours, prepared flours. Manufacture of commercial baking powders, and baking creams. Conditioning oil well drilling muds. Acid type metal cleaner.



Better Donuts for Dunkers

There are many different donut "mix" formulas. Each requires its own tailor-made leavening agent in order to avoid excess of "cripples" and high grease absorption. Victor "custom-made" phosphate leavening agents are used by the leading donut mix manufacturers. That's one of the major reasons why your "sinkers" taste so good. If an improvement in leavening can benefit your product it will pay you to see Victor.

VICTOR CHEMICAL WORKS
141 West Jackson Boulevard
Chicago 4, Illinois

PRODUCTION. .

EQUIPMENT

Gas Meter: Waukee Engineering Co. (Milwaukee) is now marketing its Nicarbo-Guard. Designed to measure carrier and enriching gases and ammonia used in carbo-nitriding, the unit can also be used for controlling carrier and enriching gases for straight carburizing. Noteworthy, says Waukee, are the control valves built into the top of each flow meter so that the operator can adjust flow while seeing exactly what he's doing as he makes the adjustment.

Automatic Performing: Logan Engineering Co. (Chicago) has just completed field testing its new hydraulic performing machine for the plastic industry. Performance data (available shortly to the trade) on the machine, claims Logan, shows that weight and thickness of preforms can be controlled to a variance of ½%. The unit features an electronic automatic control system; hydraulic pressures can be dial set, and performer operates automatically.

Noise Control: Burgess-Manning Co. (Libertyville, Ill.) has added high-velocity steam and air exhaust silencers to its line of noise abatement devices. Designated series ADS acoustical discharge silencers, the mufflers are designed to eliminate high- and low-frequency noises, operate on a patented snubbing principle and employ specially designed acoustic reactance chambers plus special sound absorbing material. The silencers will be available in three different models, will fit standard 8 to 30-in. pipe with special sizes obtainable upon request.

Pressure Filter: Hydro-Blast Corp. (Chicago) is out with a new pressure filter for dewatering granular materials. Operated automatically by electric timers, the filter uses 15 cfm. of shop air at 85 psi. for dewatering, has a capacity ranging up to five tons/hour of 100 lb. cu. ft. material. Slurry fed into the machine, avows the firm, is discharged at less than 10% moisture content by weight.

Water Spray: Applying experience gained from construction of CO₂ compressors, Allis-Chalmers Mfg. Co. (Milwaukee) engineers are now completing a five-stage, 10,920-cfm. centrifugal compressor for a new acrylonitrile-from-acetylene plant. A new water injection process, proved out in the CO₂ compressors, is incorporated in the abuilding acetylene

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thorough dispersion of ingredients in pharmaceutical compounds, for leading drug manufacturers throughout the country.

Available in capacities up to 750 co lons, these units are procuong second in capacities.

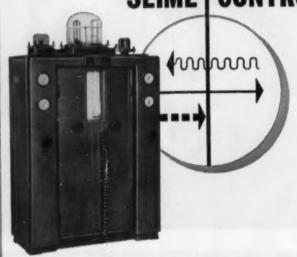
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CD-3

PRODUCTION. .

compressor, keeps temperatures of the acetylene mixture below 200 F, while generally improving process performance, claims A-C.

Water is injected as a spray at the top of each stage, immediately vaporizes and, declares the company, provides more than a thousandfold increase in cooling ability compared with that available from water circulated through a cooling jacket heat exchange system. Similar equipment, A-C expects, will find use in other plants processing or manufacturing acetylene.

Hose Fittings: Parker Appliance Co. (Cleveland), figuring to eliminate the need for connection reducers, is expanding its line of reuseable Hoze-lok industrial hose couplings. Availability of 13 additional sizes, says Parker, will also reduce design problems, simplify and speed up installation of hose lines.

Industrial Seminars: Starting June 21, Massachusetts Institute of Technology (Cambridge, Mass.) will offer a special one-week summer study of corrosion. Directed by Herber Uhlig, professor of metallurgy, the program will offer summaries of fundamental and recent advances in the field of corrosion.

• Case Institute of Technology (Cleveland) will offer a shorter course beginning April 13 on Application of Computing Machines. Compressed into two days, the conference will aim at demonstrating the usefulness of differential analyzers and programmed calculators in solving industrial problems.

Balanced Valves: Hammer Oil Tool Co. (Long Beach, Calif.) is now marketing two new balanced-type plug valves. Available in 10- or 12-in. models, the valves are designed for high- and low-temperature applications, come in a variety of materials to meet the demand of different operating conditions. Special feature of the units are gland packings, which can be changed under pressure while the line is onstream.

• Republic Mfg. Co. (Cleveland), introducing its new balanced-type selector valve, stresses the ease of valve control. A 6-in. handle, declares Republic, is more than adequate for easy turning of the 1-in. disk under 6,000 psi. pressure. Tradenamed Lo-Torq, the valve uses sealing rings to eliminate cross leakage within the valve and to insure positive contact sealing regardless of flow direction or pressure.

One Point is...

Enough to make the difference

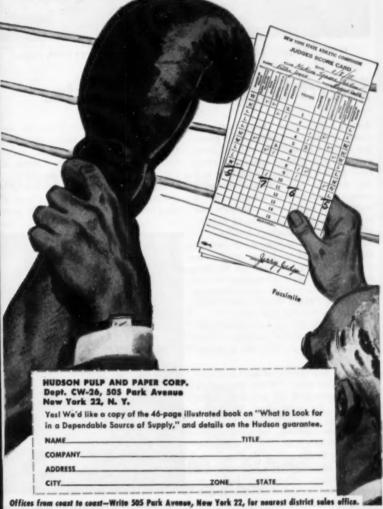


Rounds may be even, yet one point can be enough to make the difference in choosing the winner of a closely contested boxing match.

With multiwall sacks, too, strong competitors are matched to serve your needs. Judge them point by point and you'll find Hudson has extra points on which you can make your decision.

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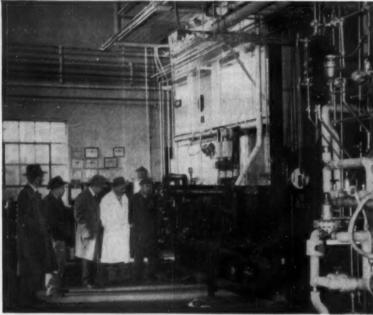




specialists to study

your requirements.

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POWER CHEMICAL sales story starts and ends in customer's boiler room.

Hard Sell for Soft Water

Among the more brow-furrowing causes of industry concern is the growing scarcity of suitable water. Lower water levels, greater spread of plant sites caused by decentralization and the struggle for strategic locations, more exacting requirements of a stepped-up technology—all these factors intensify the problem of obtaining water of satisfactory quality.

The most common way of overcoming the difficulty of having to use a substandard water is, of course, to condition water. And according to one estimate, industrial water conditioning equipment sales have more than doubled in the last five years.

But despite this growth record, selling water treatment chemicals never has been achieved without considerable effort.

One power chemicals sales manager puts it this way: "When you ask a plant engineer if he has any water problems, he never does. We know differently.

"But," he continues confidently, "although there's still a lot of customer resistance in the water treating business, the high cost of replacing equipment (among other hard facts) is proving the necessity for the proper use of water."

More than isolated facts are required to convince boiler operators they need specialized outside help. Melville Reiner, Power Chemicals Div. Manager for E. F. Drew & Co., attests to this condition. While admitting his company's boiler chemical sales have increased substantially over

the past few years, Reiner points out that the work calls for a large staff and much follow-up.

To take Drew's case for an example: 60 of its sales representatives, most of them chemists or chemical engineers, spend their working hours trying to convince about 5,000 industrial accounts of the importance of water treatment. An additional 30 members of the sales team, scattered in port cities throughout the world, concentrate on servicing some 1,600 high-pressure marine boilers.

The Treatment: It takes a lot of men, a lot of time, a lot of follow-up to sell water treating chemicals. That's what all companies in the field agree—and there are many. But, regardless of individual differences, this is the broad pattern they follow to promote internal (in-the-boiler) treatments:

An example of the arrangement is the water treatment service now in effect at Trubek Laboratories, at East Rutherford, N.J. To illustrate its development, the camera followed it through with Trubek's plant engineer, Spencer Manser.

Unlike some new clients, Manser, already cognizant of the importance of proper boiler water feed, had been looking for someone to solve his water problem.

To initiate the program at Trubek, a detailed survey was conducted by a field engineer. His tasks included:

- Obtaining external (before entering the boiler) and internal water samples.
 - · Noting data regarding equip-



INITIAL SURVEY and program are outlined for Trubek's Manser and Witting.



TRITON X-100 CLEANS THEM ALL

TRITON X-100 makes the difference between a slow-working cleanser and one that works with speed and potency—one that means satisfied customers and repeat sales.

From 3% to 5% of TRITON X-100 in your balanced alkali formulation turns it into a better, fasteracting, sudsing cleaner. For TRITON has unusual ability to remove grease and other types of soils from surfaces. It has proved its cleaning versatility on many surfaces—metal, enamel, linoleum, rubber, glass, ceramic and fabrics—the surfaces which frequently need cleaning around the home or in industry.

The cleaning capacity of TRITON, the way it prevents redeposition and permits easy rinsing, puts a plus value in your formulations. Whether your customers are household or industrial consumers, TRITON X-100 will help sell your own product to them.

TRITON is a trademark, Reg. U.S. Pat. Off. and in principal foreign countries

TRITON X-100 is a transparent liquid, essentially 100% pure detergent, easily soluble in water. It can be readily added to your products—whether liquid or powder; its non-ionic character and chemical stability give it unusual compatibility with many sanitation materials.

Write for further information. Technically trained Rohm & Haas field representatives are available to discuss with you how TRITON X-100 or one of our other surface-active agents can best fit into your product improvement program.



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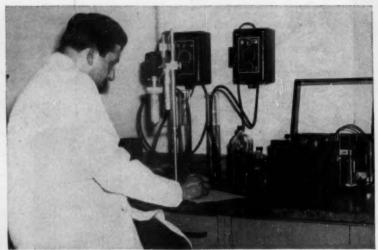


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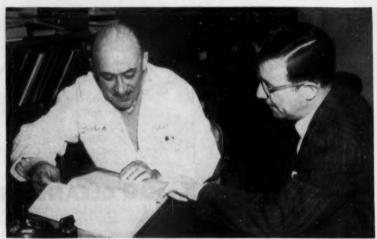
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STORY BEGINS ON P. 58



WATER SAMPLES taken at survey are analysed. Lab report and proposal go to . . .



PLANT ENGINEER Manser, who studies the proposal, gives go-ahead to . . .



SERVICE ENGINEER. His job: policing on-the-spot water treatment procedures

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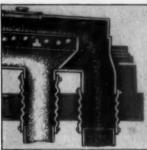
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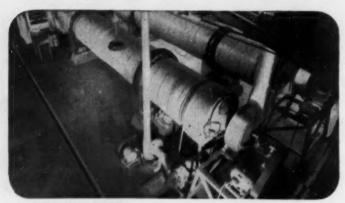
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We work for tomorrow

TODAY'S routine is set! The daily manufacturing round goes with the hands of the clock.

But, many of our men, whose eyes seldom notice the clock, are thinking, studying, working. How can we produce more at less cost to the user? What extra safeguards to maintain quality? Are there new uses for our products? Is our waste usable for something? Perhaps our research will unearth some hitherto unknown way to make our chemicals serve industry, agriculture and even homes!

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ment and operations that may have a bearing on the to-be-recommended water treatment.

• Forwarding samples and data to the home-office technical department for review and complete analysis.

Then, armed with the technical department's recommended treatment plus cost estimate, the field engineer called back at Trubek. Having already had the nod from Manser, his next step was to institute actual plant site treatment. This consisted of:

 Installing a simple water analysis kit and instructing plant personnel on how to use it to determine what and when and how much chemical treatment is needed.

• Setting up an effective system for recording the progress of the treatment, its control and the measure of its success in correcting the boiler water difficulty.

The final, or control, phase of the program, like all effective sales services, consists of regular checkups by a service engineer, who:

 Checks treatment controls, inspects boilers, makes "spot" water analyses.

 Submits reports to the plant engineer with any recommendations of changes.

And as its part in this continuing phase of the program, the technical department:

• Reviews reports of field engineers.

• Makes periodic and comprehensive water analyses.

 Provides consultation service when needed, furnishes reports and recommendations to all designated plant officials.



CONTINUOUS SERVICE: Dosage instructions are checked against sample analysis.

AN IDEA-CHEMICAL FROM DU PONT

DIMETHYL SULFATE

METHYLATION PROPERTIES

-Effective methylating agent for preparation of methyl-substituted oxygen, nitrogen or sulfur

-Methylation is usually carried out in the prescompounds. ence of an alkali. While the first methyl group reacts more readily than the second, both groups react readily in an essentially anhydrous system.

—High reactivity toward active hydrogen compounds and high boiling point of Dimethyl Sulfate makes autoclaving unnecessary in methylation reactions. Methyl halides frequently require autoclaves in similar reactions.

SOLUBILITY DATA

-Soluble in water to extent of 2.8 g/100 cc at 18°C. Hydrolysis is rapid at or above this temper-

-Soluble in alcohol, ether, benzene.

CORROSION CHARACTERISTICS —Anhydrous Dimethyl Sulfate is inert to iron and steel ... mildly corrosive to copper. Hydrolyzed solutions have the corrosion properties of sulfuric acid.

Here's an economical methylating agent you should investigate

Dimethyl Sulfate, a highly reactive compound, is a useful methylating agent in organic synthesis. Offering economy in methyl-substitution reactions, it is more reactive at low temperatures than most other methylating agents, and has a high boiling point (188.8°C.) which permits its use at atmospheric pressures.

A clear, colorless liquid, Dimethyl Sulfate is soluble in alcohol, ether and benzene. It is used in the manufacture of a number of synthetic drugs, including caffeine, codeine, antipyrine and methyl hydrazine sulfates. In addition, it finds application in the manufacture of dye intermediates.

Why not investigate the use of Dimethyl Sulfate in your business? We'll be glad to send you more information on this reactive methylating agent—specifications, properties, suggested uses, etc. Just send in the coupon below or write to: E. I. du Pont de Nemours & Co. (Inc.), Polychemicals Dept., Wilmington, Delaware.

AVAILABILITY: Du Pont Dimethyl Sulfate is shipped in tank cars, special 55-gallon returnable steel drums (net wt. 555 lbs.) and special 10-gallon returnable steel drums (net wt. 100 lbs.).

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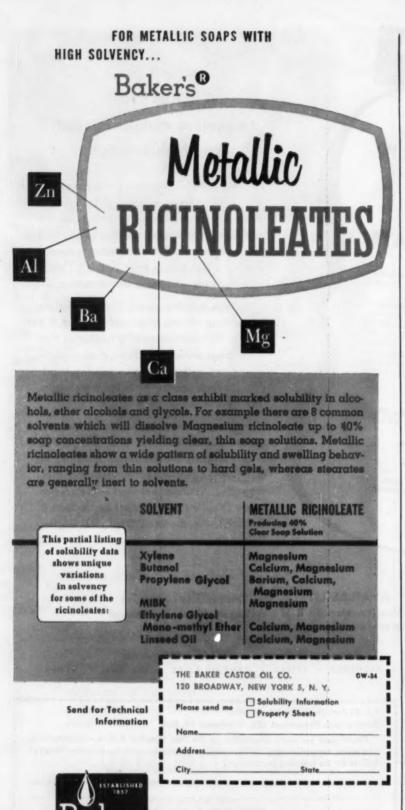
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8, Del.

Please send me more information on Du Pont Dimethyl Sulfate—specifications, properties, suggested uses, bibliography, etc. I am interested in evaluating Dimethyl Sulfate for the following applications:

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DISTRIBUTION.

Profit or Loss? The average power chemical render, primarily in the business of selling water treatment chemicals, covers its "service" overhead according to the size of the boiler installation and the treatment problems encountered. Depending upon circumstances, it may set up:

• A service contract to supervise water problems, charge extra for needed chemicals.

 A service contract with water treatment chemicals included.

• A sales contract for necessary materials, with sales service provided. (Most contracts are of this type.)

Because water treatment requirements vary so greatly, some suppliers admit they lose money on some accounts, must play the law of averages to keep over-all profits up.

All Uphill: There's been progress made, of course, in persuading boiler operators of the value of water treatment. One big hurdle cleared: the quacks have been practically eliminated from the field.

Nevertheless, it still takes a lot of hustle and drive to move water conditioning chemicals.

For the Bookshelf: Among the current literature offerings:

• L. Light & Co., Ltd. (Bucks, England) has available its 1954 catalog of organic research chemicals.

• Union Carbide and Carbon Corp. (New York) has published a 52-page book on the 20 alcohols it sells commercially.

 American Mineral Spirits Co. (Chicago) offers a buyers' guide. Listed: naphthas, hydrocarbons and solvents with their typical properties.

Building Expansions: Now under consideration:

 Virginia-Carolina Chemical Corp. (Richmond, Va.) expects to move its New York office early this spring to 99 Park ave.

 Abbott Laboratories (Chicago) will open a new Memphis sales and distribution center to serve the mid-South area.

New Plastic Colors: The Commodity Standards Div., U.S. Dept. of Commerce, has issued an amendment to "Colors for Molded Urea Plastics, Commercial Standard CS147-47," adds five new, popular colors to the list.

Spring Luncheon: The Packaging Institute luncheon meeting at the Hotel Dennis, April 7, is timed with the National Packaging Exposition at Atlantic City.



You needn't look far for Honeywell instrument service

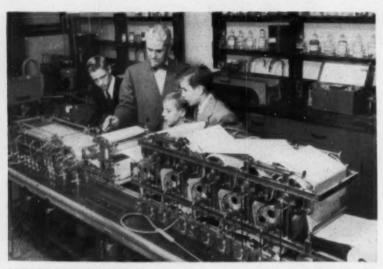
Because instruments have become such vital links in the production chain, Honeywell has developed a service organization that is the largest of its kind in the world. No matter where you may be, there's a Honeywell service man near you... in more than 110 service centers spotted strategically throughout the United States and Canada.

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MIDGET FOURDRINIER: Its output may pare service cost, speed chemical sales.

Cheaper Paper Answers

Convinced that chemicals for the paper industry must be backed by fast, economical sales service, Parsons & Whittemore, Inc., international distributors of pulp and paper-making machines, feels it has the answer to quick solutions of customer's paper, problems.

With American Cyanamid's cooperation, P&W recently demonstrated the world's smallest practical paper-making machine. Representatives of some 700 paper mills saw the Midget Four-drinier at the Technical Assn. of the Pulp & Paper Industry meeting in New York's Hotel Commodore.

With technical service playing an increasingly important part in the over-all sales effort, the tiny duplicate of the well-known Fourdrinier papermaking machine proved its ability to come up with quick answers—made paper on Cyanamid's ABC telecast "Life With Paper" faster than a baker could make a cake.

The Midget Fourdrinier, like its big brothers, will manufacture any variety of paper, varying from fine tissue to heavy kraft. Karl Clauson, vice-president of P&W points out: "It is intended to serve a threefold purpose for the industry—matching quality of paper, matching color, and testing formulations for the development of new papers."

The Problem: The big business of making paper calls for huge machines. Typical "big" machines—producing paper in 96- to 220-in. widths—range in price from \$500,000 to \$2 million, require complete boiler installations

for power. Prior to the Midget Fourdrinier, even the smallest machines cost about \$150,000 with auxiliary equipment, produced paper in 24-in. widths, obviously were too expensive to be used simply for development and sales service.

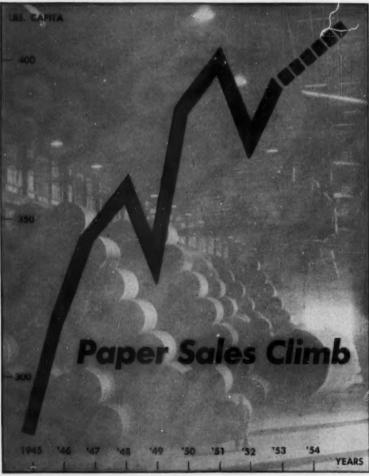
To date, producers of chemicals for the paper industry have been solving development problems under laboratory conditions, then attempting to adapt their solutions to the industry's machines. Typical problems start with given samples of paper, accompanied by orders to integrate the company's chemicals to produce the paper in mass quantities. With the sample as a guide, the laboratory must:

Match the quality of the paper.

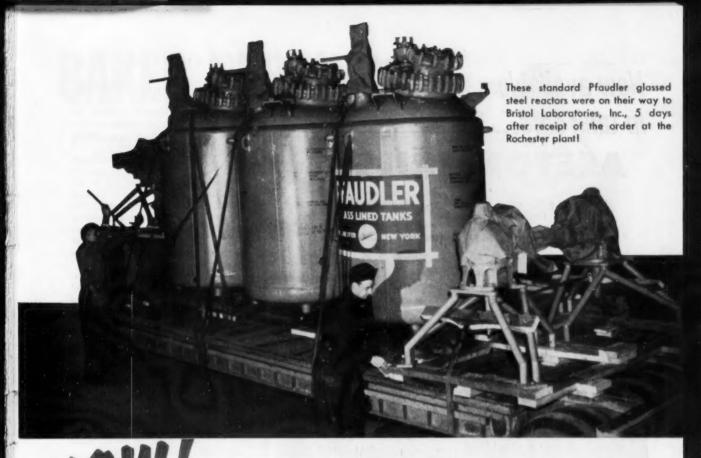
 Match the color (often difficult if it is an off-shade).

• Run the various trial batches of pulp and chemicals through paper machines, making certain that quantity production will give the same results as laboratory tests.

Suggested Solution: Parsons &



PAPER: Spiraling consumption × population growth = booming chemical salesmarket.



North deliveries available on glassed steel reactors like these!

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Corrosion resistance plus strength

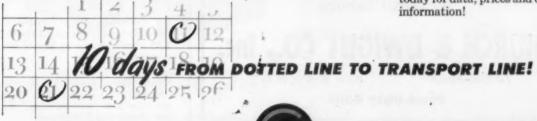
In Pfaudler glassed steel reactors, valves, pipe and columns, you have the best known solution for a wide range of corrosion problems. You eliminate product contamination and replacement of equipment due to corrosion because the glassed steel resists attack by all acids (except hydrofluoric).

Even sticky products are less likely to build up on the smooth surface of glass!

Fused permanently together, steel and glass give you the optimum benefits of both—the corrosion resistance of glass plus the strength of steel.

Solve your problem

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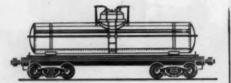


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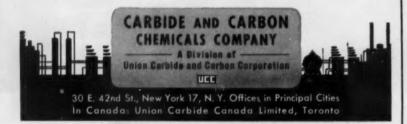


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DISTRIBUTION. .

Whittemore estimates a \$5,000-\$10,-000/week saving should result from the proposed Midget Fourdrinier installation at the government's Regional Research Laboratory at Peoria, Ill., points to these factors:

(1) Unlike the larger machines,

the Midget does not have an auxiliary boiler that must be fired four or five hours before the machine can be used. It will operate almost immediately after the power and gas are turned on.

(2) The Midget Fourdrinier is operated by one man. The 24- to 36-in. machines require a crew of four or

(3) It doesn't require much furnish-raw materials such as pulp and chemicals. It turns out only 31/2 lbs. of paper per hour, as compared with 75-125 lbs. produced by other machines.

No Small Market: With the average per capita yearly consumption of paper in the U.S., including kraft board, about 400 lbs., chemical producers for the paper-making industry are bidding for sales in the nation's sixth largest industrial market. The Midget Fourdrinier might well prove to be the cost-paring technical service link needed to back up the chemical sales team's "hard sell."

Explosives Fight

For the fourth time in three years, Buffalo will oppose applications by a group of 24 truck companies for permanent authority to transport dan-gerous explosives in over-the-road shipments.

Representing the city, Asst. Corp. Counsel Francis Cornish will present the objections in oral arguments before the Interstate Commerce Commission in Washington.

Cornish, somewhat of an expert because of his frequent handling of the matter, will also speak for Pittsburgh, Cleveland, Peoria and St. Louis—all strongly opposed to the proposal to loose fleets of explosiveladen trucks in city traffic.

Elsewhere, pending Maryland legislation would change a state trucksign regulation, require only trucks carrying class-A high explosives to be marked "explosive," would mark volatile chemicals simply "inflammable."

For Cosmetics: Atlas Powder Co. (New York City) has added Hystrene T-45 stearic acid to its line of solid. saturated fatty acids.

Merchandising Gimmick: Monsanto Chemical Co. has released a 12-minute color film "Kitcheneering." Subject: plastic uses in the home.

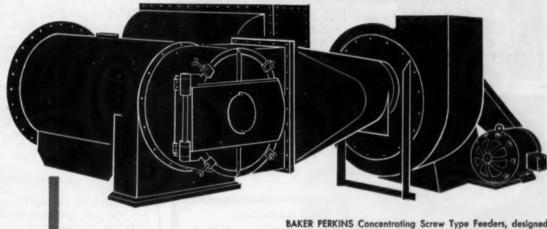
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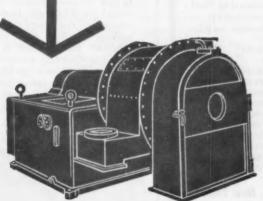
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THE SEVENTH and final link in its chain of South Atlantic and Gulf Coast facilities was established with the recent opening of Bradley and Baker's Port of Charleston distribution center.

The South Carolina pier side storage and packing center is being used this week to service fertilizer manufacturers and dealers in the Charleston area. Bradley and Baker, who claim to be the nation's largest importers of fertilizer materials, have established facilities in Norfolk, Wilmington, Savannah, Pensacola, Mobile and Gulfport.

Designed to receive fertilizer in bulk form and package it on arrival, the Charleston terminal eliminates the possibility of package damage in overseas shipment. Bulk fertilizer is unloaded at dockside, transported on conveyor belts to packaging machines in the new storage warehouse. The full bags are loaded onto waiting railroad cars for further transport.



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1000 SEPTEMBER STORY

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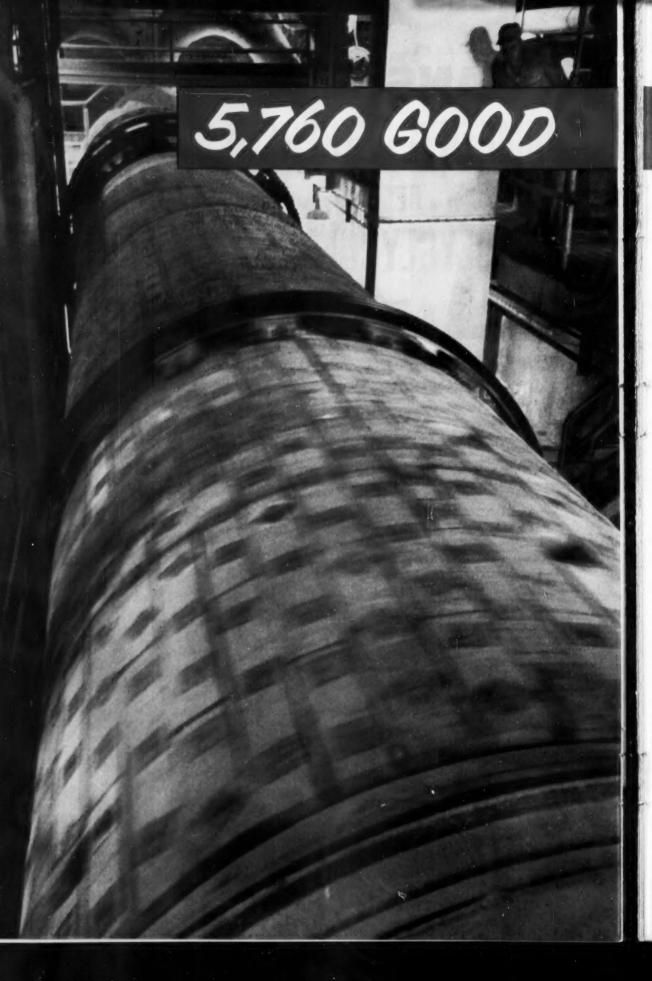
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RESEARCH



BATTELLE INFORMATION PROBERS: They're paving the way for a . . .

Machine Age in the Library

New superspeed literature searching systems are shaping up at Battelle Memorial Institute.

Hinging on the use of machines, the embryo techniques could be important aids to slicing research overhead.

Here's how they operate, how a company would launch a likely machine searching system.

There's a machine for just about every other industrial job, why not one for literature searching? Battelle Memorial Institute (Columbus, O.) information experts are, at this very moment, well on the way to a positive answer; they're proving that high-speed machine searching on a grand scale is not only possible, it's highly probable.

Basis for their hopes is a new indexing and coding technique that could be the "open-sesame" to lightning-fast literature searching, reduced research overhead costs.

Crux of the machine-searching problem is a comparatively new area, recently dubbed "language engineering" by an MIT staffer. Briefly, it's correlating the relationship between terms, so that a machine can recognize and sort out all the references on a given subject. Much of the work in the field has been with chemistry, because of the abundance of abstracts available as raw material.

From a variety of sources, about 30,000 scientific and technical terms have been collected as the backbone of a code.

* Seated (l. to r.): Richard Lund, Robert McMaster, Allen Kent, Madeline Berry; standing, James Perry. The work of analyzing and coding the selected terms is still in progress, but enough has been done to show how the system will operate, how a company would set up a machine searching system (see box). Without exploring the many ramifications of the task, it can be described (in the case of chemistry) as preparing abstracts that designate the important chemicals, properties, reactions, etc., then assigning symbols to each term in the abstract. These symbols form a code dictionary that expands as new subjects are analyzed.

This dictionary is used to encode questions fed to the searching machine, decode abstracts selected by the machine. For example, where a punched card system is used, holes in the card are arranged in patterns that correspond to the code symbols. Thus, the procedure in securing references for a given subject is to look up the code (a word or a group of words) for the subject; punch holes in the question card corresponding to the code; insert the question card into the searching machine; decode the reference cards the machine selects. The actual literature identified

by the machine must still be obtained from the library or files, but a brief abstract is usually given on the card.

All machines under consideration depend on the coding principle. But Battelle researchers are not convinced that a punched card system will be fast enough for all requirements. Back in 1952, at a symposium sponsored by Massachusetts Institute of Technology, International Business Machines demonstrated a photoelectric method of card scanning for use in literature searching. What was missing at that time was a well-developed code dictionary. But even then, there was mentioned the possibility of an electronic scanning machine with a document searching rate of 5 million per hour.

Punched card equipment can't exceed 60,000 cards per hour due to heavy wear and tear on the cards. As things stand, however, a punched card system would be a big help to reference hunters.

Punched card searching has seen service before in other applications. To eliminate confusion it's important to distinguish between data searchers and literature searchers. The descriptive type of information included in technical literature is much more difficult to organize for machine searching than is pure data. Wyandotte, for example, has equipment for locating spectrographic data. The Air Force has a system, although it's not in use yet, for mechanically correlating the data on electronic components with questions on availability and application. But regardless of whether it's data or literature references you're hunting, the more you narrow the field, the easier it is to set up a searching system.

First to admit that a broad-gauge searching system for all sciences is a long way in the future is Richard Lund, manager of Bettelle's department of information and analysis. But, he also points out, by limiting the scope to literature pertinent to individual industries, a successful searching device could be less than a year off.

At the fore in developing methods and techniques of machine searching at Battelle are James Perry and his associates, Allen Kent and Madeline Berry. Perry also participated in the design of IBM's experimental literature scanning machine, a pioneer effort. Other key figures are Robert McMaster, assistant coordination director, and Iver Igelsrud, head of the technical library.

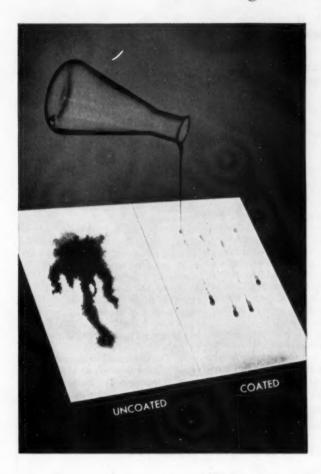
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HOW IT'S SET UP . . .

To launch a system of machine literature-searching (as envisioned by Battelle) an industrial firm would:

- Determine the field (or fields) it will be searching, how extensive searches are likely to be.
- Use the Battelle-developed code to reduce scientific papers to machine talk.
- 3) Maintain a growing file of encoded card references.
- Obtain (buy, rent, etc.) the services of a card-processing machine.

industry will be doubly alert to all possible methods of chopping research costs. With salaries at their present level, it's worth thinking of ways to keep the chemist in the laboratory instead of the library. Moreover, the rising tide of technical literature makes the subject critical; even the literature specialists no longer can keep up with all the published matter in their field.

Still another reason for improved information systems is that many research directors who have pioneered in their industry are retiring. As they leave, a mental library of vital references goes with them. Their successors will need comprehensive literature searches to take up the slack.

The value of a search of published scientific literature is of course, obvious. But it is also nice to know what has been done along the lines of the project in one's own organization. The accumulated note books, reports, and letters of a company often contain a lot of information, which, if properly arranged for searching purposes, could save the researcher time and trouble.

With all these factors in mind, investigators at a number of institutions (Battelle, Massachusetts Institute of Technology, and other schools, institutes and government agencies) have been hard at work for several years. A headache in all quarters where scientific research is carried on, the literature problem has been attacked by industry as well as by government and educational organizations.

Mechanized techniques of rapid pinpointing of raw data have been installed by several firms, are one important result of this effort. More modest (but often highly imaginative) constructive approaches are characterized by such innovations as the abstract bulletin published by Nopco Chemical Co. (Harrison, N.J.). Most companies today provide some sort of technical intelligence system for their technical staffs.

And a spate of private technical abstracting organizations have sprung up during the last decade, are generally fluorishing on industrial and government contracts.

An old hand at the business of

literature searching, Battelle has long maintained a technical information service, published its own magazine of abstracts—The Battelle Technical Review—gleaned from the thousands of technical and scientific periodicals to which the institute library subscribes.

Word of caution: the best literature searching machine will be only an unthinking robot, requiring intelligent human beings to feed its maw with predigested information. When its electronic palate is tickled by a coded question, it will disgorge ideas that will still be only as good as the scientists who utilize them.

Cattle Beefer

Ames, Iowa, this week is the center of a whirlwind of chemical interest. The attraction is an Iowa State College research project that may open a large and profitable new market for diethylstilbestrol in cattle feed supplementation.

Recent experiments have produced data indicating that high-quality beef can be produced faster, cheaper and with less feed when the hormone-like synthetic is included in the diet.

These are the results that are intriguing livestock, chemical, and feed supplement producers.

- Steers fed 11 mgs. of stilbestrol daily gained more than 3 lbs/day—a record.
- The hormone-like chemical sliced feed bills by as much as 16%.
- Hormone-fed cattle showed about 15% better appetite, resulted in

HOW IT'S USED ...

To use the envisioned IBM card system, for example, the literature searcher would:

- 1) Put his question in code on an IBM card.
- Fill the machine with all cards containing coded abstracts in the broad area of the search.
- Insert question card into machine which scans the file of coded abstracts, ejects pertinent cards.
- 4) Decode the brief card abstracts selected by the machine.
- Use these abstracts as a skeleton source of information and to pin-point more complete literature references.



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RESEARCH. . .

a cash return to the feeder of around \$20 a head in added profit.

 Steers fed stilbestrol exhibited no ill effects.

For stilbestrol producers° such reports have a cheerful ring. They herald a lusty demand that might well account for more of the product than is now taken by all other applications. But the data also is sure to generate a measure of anxiety. Still painfully fresh is the recollection of Congressional chemicals in foods investigations during which buckshot charges of "public health menace" were leveled at a number of compounds.

Stilbestrol, which is widely used to caponize broilers, bore the brunt of many such attacks. Its exoneration (for careful use) in poultry raising does not imply automatic acceptance in cattle raising. The cases are not exactly analogous since the chemical is administered to poultry by implantation under the neck skin, while it is actually fed to cattle in their rations.

Some resulting differences in the way the animals and poultry are fattened are attributable to the different methods by which the compound is administered.

Research aimed at clearing up this mystery is now under way at Iowa State. It's pretty much of an uncharted field; this is the first verified instance of the use of stilbestrol in feed rations.

Reports have cropped up, from time to time, that the chemical (in semifluid and paste form) is being used by poultry raisers, but they have not been substantiated. Food & Drug Administration has given its blessing only to the implantation technique, provided the part of the bird containing residual stilbestrol is discarded.

Didn't Say No: FDA has not approved, in so many words, the use of steer carcasses from the college's stilbestrol experiment. But the meat did enter commercial meat marketing channels through the meatpacking firm Morrell and Co.

College officials explain that FDA did not disapprove of the sale of the meat to Morrell, are guided by a provision that allows meat from nutritional research projects to move into commercial channels, so long as it doesn't otherwise violate FDA regulations. The amount of such meat, however, is almost infinitesimal in comparison with total meat output.

Official approval of stilbestrol feeding will be requested when residual toxicity tests, now in progress at State's meats laboratory, are completed.

* S. B. Penick, Chemo Puro, Merck, Fallek Products, among others.

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RESEARCH. . .

Iowa State College (in the name of Iowa State College Research Foundation, Inc.) has applied for a patent on a stilbestrol-containing feed supplement, and the hormone feeding process.

The Foundation will license feed manufacturers to put up a stilbestrol supplement in accordance with specifications and state and federal regulations. Since stilbestrol is classified as a drug, the FDA will regulate manufacturers licensed under the patent.

There's no guarantee, of course, that the cattle experiments will reach commercial fruition. Before feed manufacturers buy the Iowa State results they'll be asking several questions. One: can the hormone be fed safely to both sexes of beef animals? The college's livestock nutrition researchers are right now hard at work on probing this question.

But Iowa is optimistic, feels that there is little doubt that all potential hurdles can be safely cleared.

Job Opening: A potential new job for glycerine has been spotlighted by the results of United States Rubber Co. research on emulsion polymerization of butadiene and styrene. Company chemists succeeded in carrying out experimental polymerizations at O C to produce a new variety of extra-cold GR-S. Since water freezes at that temperature, it must be replaced (or mixed with) an antifreeze in the emulsion. Three aspirants to the job proved suitable: methanol, ethylene glycol, glycerine. All gave good results in tire tread stock compounded from the experimental polymers.

Spinning Aid: Researchers of Dow Chemical Co. have worked out an improved method of wet spinning polyacrylontrile from salt solutions. Key: addition of an organic peptizing agent to one of the baths through which the spun product passes. The new technique is protected by U.S. patent 2,670,268.

 Also newly patented is a method of plant growth regulation using 3amino-1,2,4-triazole. Assignee: American Chemical Paint Co. (Ambler, Pa.).

New Peroxides: Researcher Nicholas Milas of Belmont, Mass., is credited with the synthesis of an interesting new group of peroxides. Working under a Research Corp. (New York) grant, he synthesized a number of novel acetylene peroxides by reacting hydrogen and an acetylene carbinol at temperaturees below 20 C.

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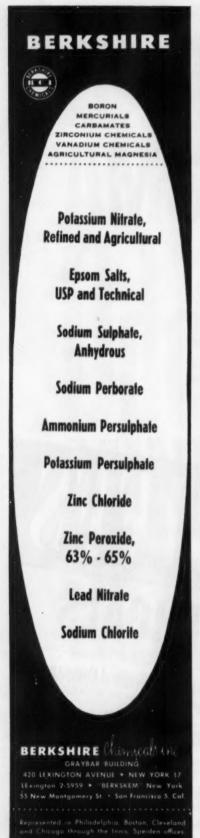
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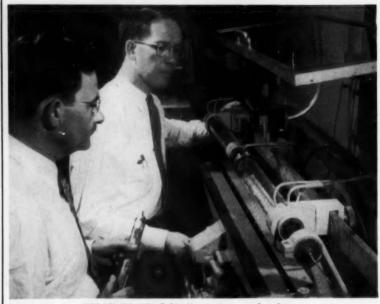
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BELL'S PFANN (left): For purity, a molten broom.

Germanium, Pure and Simple

A simple method of refining germanium to 99.99-plus percent purity has been devised by Bell Telephone Laboratories. Known as "zone melting," the new technique is getting its tryout in the production of transistorgrade germanium.

According to Bell, the product contains only one atom of foreign matter in 10 billion atoms of germanium.

The process has also turned out experimental lots of extremely pure tin and antimony, might be applied to the purification of several organic and inorganic materials. Developed by Bell researcher William Pfann, it should aid the development of new electronics substances.

Nub of zone melting is the fact that impurities are not equally soluble in the solid and liquid state of a solvent; generally they're far more soluble in the liquid. To put this condition to use, a narrow molten zone is moved slowly along an ingot of relatively impure material. Result: impurities wind up at the end of the ingot, literally swept down by the melt line.

This is accomplished, explains Bell, by passing the ingot through a circular induction heater, which, in the case of germanium, raises it to 1760 F—the melting point. As the ingot moves slowly through the heater, the molten zone tends to hold impurities as the germanium solidifies into a purer state on the other side of the heater.

In actual practice, a series of such

circular heaters is used, and each molten zone extracts its share of impurities left behind by the preceding zone. The end section of the ingot, loaded with impurities, is cut off.

A valuable research tool, newly applied to the preparation of ultra-pure electronics materials, zone-melting is playing an important role in laboratory investigations of the effects of impurities on many substances. Aside from its purifying value, the method permits the identification of contaminating elements, which often are present in such minute amounts that they defy detection by established analytical tools.

Spin-Dye Boost: Boosting the trend to built-in color (CW, Feb. 13) in the chemical fibers field, the Du Pont Co. has just launched a line of spun-dyed acetate yarn. For a start, the company is offering the new yarn in four colors (scarlet, maroon, black and navy blue), hopes to eventually broaden the spectrum to take in several more shades. Irish green and gold are expected to be the first additions.

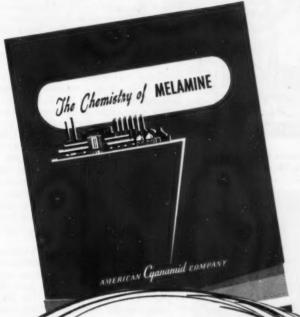
Rare Earth Advance: Natural isotopes of the rare earth element, gadolinium, have been separated for the first time, reports Union Carbide and Carbon Corp. Accomplished at Oak Ridge National Laboratory (operated by Carbide for Atomic Energy Commission), the separation is made possible

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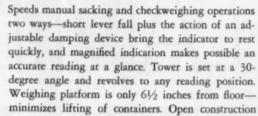
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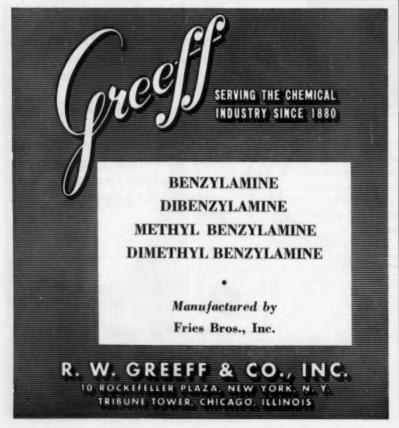
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by an adaptation of mass spectographic equipment used previously for separating uranium isotopes. Of top interest to nuclear physicists, gadolinium is essentially an unknown quantity outside the field of atomic research. Carbide reports: "The preparation of pound quantities of pure gadolinium . . . as well as the enrichment of its isotopes . . . will provide gadolinium for widespread research." Fourth of the rare earth family to undergo isotope separation at Oak Ridge, gadolinium was preceded by cerium, neodymium and samarium.

Debut: Four companies show up in this week's flock of new products.

 American Cyanamid has unveiled two additions to its line of resin fast dyes. Labeled Calcodur Resin Fast Gray 2G and Fast Gray B, they're intended for use with resin-finished (melamine and urea-formaldehyde) viscose and cotton fabrics. Both are available from Cyanamid's dyestuff department, Bound Brook, N.J.

• Evans Chemetics' (New York) offering is phenylmercaptoacetic acid, an analog of phenoxyacetic acid. Because of its structural similarity to the latter, the newcomer, states Evans, is expected to possess bactericidal, fungicidal and plant growth regulating properties. Other use possibilities: in weed-killing compositions; intermediate in the synthesis of drugs and X-ray contrast agents; as a mercapto-penicillin precursor.

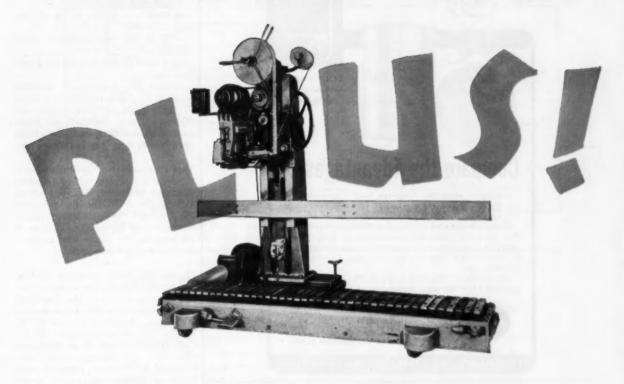
• Fisher Scientific Co. (Pittsburgh, Pa.) is out with a pure diphenylamine designed for use in spectrophotometric nitrate analysis. A white solid, the reagent is useful in glycerine titrations, for the detection of iron, chromium, manganese, zinc and uranium.

 Mann Research Laboratories' entries are four new crystalline enzymes: arginase, β-glucuronidase, tyrosinase, and uricase. All are beamed at biochemical researchers.

Nearing Completion: Devoe & Raynolds Co.'s new three-story research laboratory at Louisville, Ky., is now being readied for service. A part of the company's Jones Dabney division, the facilities were built at for an estimated \$500,000. Provision was made for major additions to the building, if needed at a future date.

The Facts: Armour Research Foundation has just tallied its 1953 accounts, reports a new high in business volume. The foundation performed more than \$10 million worth of research, a 25% increase over the preceding fiscal year.

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- Floor area was boosted to 260,-000 sq. ft.
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Among the foundation's achievements for industrial sponsors: a rapid drying process for inks, paints and varnishes; new low-cost air filter; method of recovering manganese from open hearth slag; long-lasting tin can.

New Polymers: New polyalkylidenes are dividends of research by Imperial Chemical Industries, Ltd. Subject of U.S. patent 2,670,333, the polymers are prepared by condensing diazomethane and higher diazoalkanes in the presence of a borate ester catalyst. Product is tough and flexible.

Playing the Odds: Research leaders can get the facts on the statistical design of experiments at the American Chemical Society's Milwaukee section conference, April 23. Experts W. J. Youden (Bureau of Standards), W. L. Gore (Du Pont) and K. A. Brownlee (University of Chicago) head the speakers' list. A new planning tool, statistical design aims to cut down the number of experiments needed to vield required information on a process. Purpose of the Milwaukee meeting is to relate some of the techniques of statistics to practical chemical laboratory problems.

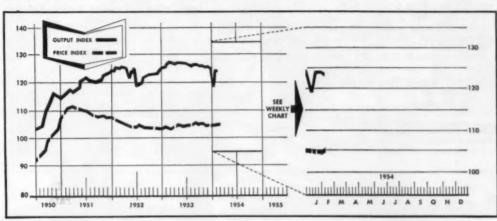
Antibiotic Opportunity: Researchers of Sloan-Kettering Institute for Cancer Research (New York), Wellcome Research Laboratories (Tuckahoe, N.Y.) and Parke, Davis & Co. (Detroit, Mich.) are involved in the synthesis and evaluation of a new antibiotic now being eyed for possible value in cancer therapy. The material is called Azaserine, was recently probed for its potency in combination with the known antitumor agent, 6-mercaptopurine.

Write-off Rewrite: A new revision of expansion goals by Office of Defense Mobilization means a better break for research laboratories. Under the new provisions, states ODM, the following laboratories are now eligible for rapid tax write-offs:

 Those established in connection with a product or service covered under an individual expansion goal.

 Those engaged in work that is clearly in the interests of the defense program.

Originally, only labs with government contracts were eligible.



CW Index of Chemical Output—Basis: Total Man Hours Worked in Selected Chemical Industries
CW Price Index—Basis: Weekly Prices of Sixteen Selected Chemicals

MARKET LETTER

With the end of the first quarter approaching and gloom-peddlers harping on "depression talk," many chemical marketers are taking time out this week to check just how bad—or how good—business really is.

A CW survey indicates that while outlook for the future may be slightly tinged with gray, the picture is by no means black. Fact is, most executives are repeating previous predictions that market-place activity during 1954 will be some 10% under last year, and the label "normal and needed readjustment" still applies.

Sums up one chemical company spokesman: "We're too used to having things at 100%; 80% or 90% of capacity is still a good year."

Chlorine output is still being held back somewhat because of slow calls from consuming industries, but producers are displaying a bit more optimism over prospects for an upturn during the next few weeks.

Recent chlorine cutbacks have served to keep the solid caustic soda market in some semblance of tighter balance. Export calls, too, contribute to the caustic siphoning, have firmed prices. At the moment resale tags range from \$2.95 to \$3/cwt., with no hint of the not-too-long-ago practice of overseas price shaving.

Another item expected to get a boost soon is anhydrous ammonia. Stocks are reportedly at a good level, ready for the impact of agricultural demand. And chances are good that last summer's tight supply situation will not be repeated this year. Increased production should be ample to cover needs of farmers sold on the direct application use.

Currently undergoing a minor supply/demand squeeze in some quarters is rayon-grade salt cake. Triple-pronged reason for the tightening: general slowdown in rayon manufacture (from which much of the cake is recovered; pickup in sulfate pulp production (prime consumer); and a falling off in imports.

MARKET LETTER.

WEEKLY BUSINESS INDICATORS	Latest Week	Preceding Week	Year Ago
CHEMICAL WEEK Output Index (1947=100)	123.3	123.4	126.5
CHEMICAL WEEK Wholesale Price Index (1947=100)	104.6	104.6	103.4
Bituminous Coal Production (daily average, 1,000 tons)	1,126.0	1,208.0	1,435.0
Steel Ingot Production (1,000 tons)	1,642.0(est.)	1,686,0(act.)	2,284.0
Stock Price Index of 13 Chemical Companies (Standard & Poor's Corp.)	269.1	265.1	254.0
MONTHLY INDICATORS—Employment			
	Latest Month	Preceding Month	Year Ago
All Manufactures	12,747.0	13,122.0	13,619.0
A'I Manufacturing		E 488 A	E 500 0
A'l Manufacturing Non-durable Goods	5.296.0	5,477.0	5,599.0
Non-durable Goods Chemicals and Allied Products	5,296.0 499.6	5,477.0 502.5	516.1
Non-durable Goods Chemicals and Allied Products Paper and Allied Products	5,296.0 499.6 437.9	502.5 444.9	516.1 435.6
Non-durable Goods Chemicals and Allied Products	5,296.0 499.6 437.9 197.2	502.5	516.1

On the other hand, some synthetic resins don't rate a tight label. Maleic business, for instance, is somewhat slower than makers had hoped for. Considerably cut consumer inventories, however—automobiles, refrigerators, where the resins are used in baked-on enamels—may soon presage a pickup in buying.

And by this week there's a lot more epoxy resins on the market. Shell Chemical's new installation near Houston (Tex.) is onstream. The multimillion-dollar plant, which triples Shell's capacity—now at a rated 15 million lbs./year (CW, Sept. 19, '53)—also includes facilities to produce bis-phenol. Output of the latter makes the plant independent of outside suppliers for the resin components.

Price hikes last week of some plating materials were a prompt reflection of higher tin tags. But the slightly rising potassium stannate and sodium stannate prices aren't calculated to stampede hitherto cautious consumers.

The base metal advance is tied in with speculation that the U.S. will take another 20,000 tons of Indonesian tin off the market.

In another section of the nonferrous metals market, lead producers are a bit more optimistic than they have been in the recent past. Trade talk is that prices may be in for a nudge upward from the present $12\frac{1}{2}\frac{4}{2}$ lb.

That's in direct contrast with buyers' expectations of only a few weeks ago that further reductions were in the wind. Odds are, though, producers will think twice before making a move. Consensus is that the spurt was brought on by users nearing the bottom of long held-down inventories. When and if the prices are altered, you can be sure lead sellers will be convinced the increase is going to stick.

Spring-is-in-the-air item: paintmakers are showing a decided interest in pigments. Litharge, orange mineral and red leads, after recent cuts, appear stronger; zinc oxide and titanium dioxide buyers, too, are stepping up their purchases. Supplies as of now, of course, are ample to meet all inquiries.

SELECTED CHEMICAL MARKET PRICE CHANGES-Week Ending March 8, 1954

	Change	New Price		Change	New Price
Copper, electrolytic, dlvd., Valley basis	\$.0025	\$.2950	Potassium stannate, dms., frt.	\$.003	\$.650
Cottonseed oil, crude, tanks, Southeast	.00375	.12875	Sodium stannate, dms., works, frt. alld. E	.005	.483



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METHIONINE PAYS OFF: Better feathers in their nests.

Poultry Petrochemical

When a company announces plans to erect a petrochemical plant, that's news in itself. When the decision depends largely on how many chickens will be fed amino acid methionine. the risk-taking appears rather novel. This week the Chemicals Division of Pan American Refining Corp. (New York) decided to take the plunge, will produce the vital methionine raw material, methyl mercaptan. First trickle is slated to hit the market by late 1954 from a new installation near its Texas City (Tex.) refinery. The venture will turn out high-purity methyl mercaptan at the rate of 5 million lbs./year by early 1955.

Target in the Basket: Producers of methionine (or the calcium hydroxy analogue of methionine) currently consume about 99% of the total national methyl mercaptan output. And methionine manufacturers look for an increasingly rosy future for sales to the broiler feed formulators.

After an extensive investigation Du Pont is reflecting the same optimism. A spanking new plant for feed-grade methionine is scheduled to go onstream in mid 1954 near Beaumont (Tex.). You won't read it in the papers, but Pan American's total methyl mercaptan output is headed for Du Pont's methionine.

The link between the methyl mercaptan plant and the poultry dealer is this: the conversion of feed into chicken or turkey meat is generally more efficient when the feed is supplemented with methionine. Though the poultryman may not be able to watch the role of methionine in the complex over-all metabolism of his broilers, his balance sheet will usually show more profitable operations when the amino acid is used.

Here's how feed formulators and poultrymen profit from the animal nutritionists' recommendations to remedy an amino acid deficiency. Formulators in recent years have been adding materials of higher energy content to their poultry feeds. This high energy content puts the bird under terrific stress to convert feed into meat. Since the high-energy feeds are likely to be deficient in one or more of the sulfur amino acids, the formulator can improve the efficiency of the conversion of feed into meat by a twofold procedure: he may choose the natural protein sources so as to balance as far as possible the poultry requirement of amino acids in the feed; then adjust finally the marginal methionine deficiency with the synthetic feed-grade amino acid. The inclusion of 0.5 to 1.0 lb. of feed-grade methionine per ton of feed produces an optimal and profitable efficiency in the conversion of feed into meat. Expert opinion avers that the latter step is profitable for broiler producers over and above the cost of added me-

But there are other benefits derived from the addition of methionine to broiler feeds. The very young fowl

converts a relatively large portion of its sulfur amino acids into the protein of its feathers. If the bird's feathers grow faster, there are fewer pinfeathers. Therefore, it takes less hand picking to prepare a bird in the poultry-dressing plant. This feathering effect of a methionine-primed ration appears most clearly (see cut) where the bird is subjected to the stresses of an extremely warm or cold climate.

Less often mentioned is the help that methionine gives in preventing protein depletion; in giving the animal greater resistance to infections, and developing an immunity to many diseases. Frequently, in outbreaks of coccidiosis, local feed dealers have recommended high dosages of coccidiostatic drugs, such as the various sulfa compounds. Methionine can aid in detoxifying the accumulation of these drugs in liver tissue.

Pharmaceutical First: Actually, methionine has been sold to pharmaceutical firms since its introduction in 1946 by the U. S. Industrial Chemicals Co., now a division of the National Distillers Products Corp., at its Baltimore (Md.) plant. The Dow Chemical Co. also offered for sale at the same time, or shortly thereafter, a pharmaceutical grade of methionine.

Major uses of pharmaceutical methionine:

 Therapeutical agent in the prevention and treatment of liver and kidney damage resulting from low protein and high-fat diets, and in the treatment of toxic poisoning;

 Protein-enriching agent of certain protein hydrolysates—"predigested proteins"—used in the treatment of peptic ulcers and cases of human starvation.

It was rather easy for those already manufacturing a pharmaceutical grade to expand their markets and go after the much larger feed-supplement business.

Currently, Dow and USI are the only major manufacturers of feed-grade methionine as the free amino acid. The Monsanto Chemical Co. at its Everett (Mass.) plant produces a small amount of the calcium salt of the hydroxy analogue of methionine. Formulators may overlook the fact that it takes at least 1.2 lbs. of the analogue derivative to be equivalent to 1.0 lb. of methionine, assuming a 100% conversion. The animal must convert the analogue into the amino acid, before it can be utilized.

Although it is difficult for experts to agree, those willing to stick their necks out anticipate a total production of methionine, both feed grade and pharmaceutical, of no more than 2.0

million lbs. in 1954. This total may rise to 4.5 million lbs. by the end of 1955 with the Du Pont plant swinging into production.

Dow's California plant has not quite operated at full capacity in the past. It would seem doubtful that the new Du Pont plant would arrive at its touted capacity of 6 million lbs. of feed-grade methionine over night, even with the most optimistic outlook for the feed-supplement market.

Meeting this growing demand for synthetic methionine, the production of methyl mercaptan will be boosted correspondingly. Besides Dow at Pittsburgh (Calif.), nearly all of whose methyl mercaptan is consumed in synthesizing methionine, and the upcoming synthetic plant of Pan American, these additional companies are known to be producing methyl mercaptan in the U. S.

• Index Chemical Co., Houston (Tex.) (synthetic process).

• Universal Mfr. Co., Houston (Tex.) (petroleum recovery).

• Brea Chemicals, Inc., Los Angeles (Calif.) (petroleum recovery).

The mercaptan producers may already sense that their plans are too bullish. Thio Chemical, Inc., may not complete a methyl mercaptan plant already under construction at Port Arthur (Tex.). A management decision is awaited this month.

Up to this year almost all methyl mercaptan produced in the U. S. went into the manufacture of methionine. There is a new hush-hush development on the polyethylene horizon that may change this pattern, may consume a tidy amount of methyl mercaptan.

One mercaptan outlet may be export. For instance, trade talk is that Argentina is building a methionine plant. Source of methyl mercaptan there has not yet been pinned down.

Methionine Bidders. Two age extremes of our population have been accelerating percentagewise: the children and those over 60 years of age. Both of these groups require protective, protein-rich foods. People are eating more protein and less starch. Result: the demand for meat, including fowl, will grow even faster than the general population.

The broiler industry is one of mass production; will call for more and more methionine to squeeze out greater returns from the very competitive meatproducer market. The promotion of the use of electric deep-fat fryers is another accelerator of the broiler market, and in turn the methionine market.

Turkey raisers are also impressed



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by the improved growth and feeding efficiency from methionine additions. Proof of the effectiveness of methionine in swine growth and feeding efficiency is only gradually becoming available.

The supplementation of dog food with methionine definitely improves the dog's coat of hair; reduces the tendency to shed. Likewise, controlled additions of methionine to mink rations upgrades the quality of their pelts, may interest a good many raisers of fur-bearing animals.

A boost for the pharmaceutical grade of methionine may result from two types of clinical study:

(1) counteracting atherosclerosis, or hardening of the arteries,

(2) minimizing radiation injury. Methionine is a precursor of other sulfur amino acids in the human body that offer protection from radiation damage, such as X rays, etc.

One thing is certain about methionine: a barrage of test data and information will confront the feed industry. Competition among feed manufacturers and the savings to their customers will dissipate the aloofness of nonusers. This outlook may well be behind the optimistic justification of Du Pont's and Pan American's entry into the fowl-feeding business.

New Peaks for Pulp

That 1953 was a good year for the chemical process industries is further pointed up by some impressive figures concerning wood pulp. All former records for production and consumption in the U.S. were broken last year.

Wood pulp output of all grades in U.S. mills rose to near-17.6 million tons in 1953 from 16.5 million the previous year. To these amounts, imports added about 2.2 million tons last year (vs 1.9 million in 1952), while exports took 153,000 and 199,000 tons in the respective years. This left as total new supply for domestic use a whopping 19.6 million tons in 1953, in comparison with 1952's 18.2 million.

If past performance is any criterion, odds are the current year will also show another increase. Note this record: in only 12 of the last 54 years has there been any drop in pulp consumption in the U.S.; in 42 of these years there has been a rise. And, in general, the dips have been shallow while the increases usually have been steep.

During 1953 Canada continued to occupy the top niche as foreign supplier of pulp, shipping in more than 1.6 million tons. The year's greatest increase in imports, however, was from Scandinavian countries, which upped their shipment to the U.S. by some 175,000 tons over 1952's 357,000.

Answer on Ammonia

How much ammonia capacity is there in the U.S.? There is a new answer this week on that point—nub of the current hubbub over government encouragement of nitrogen expansion. Following a survey of producers, the Business & Defense Services Administration has come up with this answer: enough—and present plants can quickly step up output to take care of increased demand.

The Office of Defense Mobilization recently boosted its goal from 2.93 million tons/year (by Jan., '55) to 3.5 million by Jan. '57. When industry objected (CW, Feb. 20), ODM requested the capacity check from BDSA (CW, Mar. 6).

According to BDSA's rundown, by early next year producers could turn out fixed nitrogen at possibly higher than 3.575 million tons/year. The details: in 1955, rated annual capacity, including all plants covered by tax amortization certificates, would add up to 3.1 million tons. Subtract 230,-000 tons for certificates not now being acted upon to get an actual 2.87-million-ton figure. That's total synthetic capacity, assuming plants are operated to get maximum yield. If pushed by demand-and at a sacrifice in percentage yield-that 2.87 million tons could be increased about 10%.

With further refinements in production methods, BDSA reports indicate, a conceivable 3.31-million-ton level can be hit.

To this the agency adds some 265,000 tons of nitrogen output from byproduct and organic sources to tally out their 3.575-million-ton total. An ultimate 3.8-million-ton capacity is possible if some on-the-fence companies with certificates decide to build.

ODM asked for several surveys anent its revised nitrogen goal. In addition to its requests to BDSA, it asked the Dept. of Agriculture to crystal ball farm nitrogen consumption on a regional basis. All of these will be used by ODM in determining criteria for possible new write-off certificates.

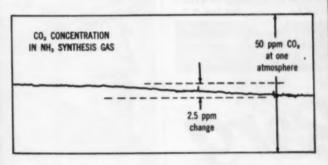
Right now, though, it looks as if prospective ammonia producers who have asked for write-offs will be able to use only those new fast depreciation provisions included in the tax bill authored by the House Ways & Means Committee.

Looking for parts per million of impurity?

Then consider the use of Perkin-Elmer infrared plant stream analyzers. For example, the BICHROMATOR Analyzer is being used to measure water in "Freon" (fluorinated hydrocarbon) streams over a range from 0 to 10 parts per million! And a TRI-NON Analyzer can record continuously 0 to 50 parts per million of CO with 24-hour stability of 1/2 ppm!

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Typical portion of record from TRI-NON Analyzer.

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PLASTIC TAKEOFF: U.S. Navy Neptune (P2V) long-range patrol bomber equipped with polyester resin-fibrous glass stinger tail (bottom photo).

Stingers Go Plastic

Reinforced plastics, despite some claims of enthusiastic rooters, may not yet be ready to completely supplant wood or metal as structural materials, but the infant industry continues to drive on new markets. This is underscored by revelation that the U.S. Navy is now equipping its Neptune (P2V) patrol bombers (see cut) with "stinger" tails made of fibrous glass reinforced with polyester resins.

The molded piece—housing the latest weapons for seeking out submarines on its long-range patrols—is the first large plastic fuselage structure being turned out on a mass production basis as an integral part of aircraft design.

The tail is about 6 ft. deep, 4 ft. wide, 17 ft. long with weight about two-thirds that of the lightest metal equivalent. It's being produced at a rate of two a day by the Zenith Plastics Co., Gardena (Calif.).

One added kudo for the resin-glass combination: there's a saving of approximately 80% in manufacturing costs—five of the plastic tails can be produced for about the cost of one of conventional metal.

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In making the new systemic insecticides, such as octomethylpyrophosphoramide.

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In the manufacture of long-chain quaternary ammonium compounds for use as softeners, lubricants, and waterproofing agents.

Leathe

For use in unhairing hides.

Surface-active agents

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Polymerization Inhibitor

Inhibits polymerization of unsaturated hydrocarbons during distillation.

Used as a stabilizer for certain types of resins.

Used to reduce webbing of natural and synthetic rubber latexes during dipping operations.

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Increase in gallonage of 30 representative paint companies

	1950	1951	1952	1953
Less than 5,000 gal/yr	21	12	1	. 0
5,000-50,000 gal/yr	2	1	8	0
50,000-500,000 gal/yr	6	9	12	21
500,000 gal/yr up	1	3	9	9

LATEX PAINT BAROMETER. Thirty companies and how they grew.

No Letup for Latex

Latex-base paints, near "revolutionary" in their impact a few years ago, boast still-climbing popularity.

New twists, like making textured and patterned finishes, will bolster sales in '54, but . . .

 $\frac{Big\ hope\ to\ push\ volume\ past\ '53's}{paints}\ is\ soon-coming\ drive\ on$ exterior $\frac{1}{paints}$

Take a look at the record. Take a look at the skyrocketed output, the growing number of makers and sellers. At the popularity with amateur painters, and the big change in paint buying habits. Take a look and you'll see why latex producers feel latex paints are just getting into stride.

There may be plenty of competition from other paint bases—acrylic and polyvinyl acetate, and vinylidine chloride and others of considerable merit—but the latex vehicle suppliers are confident that nearly six years of hard consumer testing has built a user trust and confidence that will be difficult to dislodge. Further, there's been no letup in developments to make the latex paints even more attractive.

One of the more recent is Sherwin-Williams' Applikay paint to be used in conjunction with the S-W Super Kem-Tone (CW, Feb. 6). It allows a home decorator to put a number of attractive designs on the otherwise plain-toned walls. Another development is Glidden's texture-producing paint, Spred Texture (CW, March 6). (It's distinct from the "fillers." like

sand and sawdust, that have been sold for texturing.)

In and Out: And it's no secret that latex makers want to move outside, into stucco and masonry paints. Glidden, for one, is pleased with the weatherability of one of its new butadiene-styrene paints, has an eye on the big exterior paint market.

That will be a rough fight, though. Plasticized styrene is fairly well established, and PVAc exterior paints have been sold for several years. Paint makers have also been studying Dewey and Almy's new Everflex G, an internally plasticized dispersion of PVAc. It's claimed to virtually eliminate weathering problems stemming from plasticizer migration.

Happy Surprise: Confident as Glidden was when it introduced its latex Spred Satin interior finish in late 1948, there's no doubt it proved to be more popular than anyone expected. For Glidden, and others as well, the latex paint has proved to be by far the best selling consumer product, and in most cases, has overshadowed the sales of all other interior finishes combined.

Dow Chemical, which only recently

completed a survey of the latex paint business, points to the record of some 30 typical paint makers, and their output of paint over a 4-year period (see chart). By now, Dow estimates, there are some 60-70 firms making latex paints, perhaps 100 selling them.

With one or two exceptions, all the top dozen paint makers are selling "rubberized" interior paints. It adds up to a pretty lucrative business for suppliers, which includes—besides Dow—American Polymer, Bakelite, Dewey and Almy, Firestone, Goodyear, Koppers, Monsanto.

Follow-up: When the paints were first offered they were in competition with another sort of water-base paint, one that had set pretty much of a record itself. That was the resinemulsion paint, typified by Sherwin-Williams' Kem-Tone. (As far back as 1937, Benjamin Moore offered its Paqua water-thinned resin paint.)

At the peak of its popularity, some 20 million gal. of resin-emulsion paint were sold. It was, in some senses, responsible for getting the amateur painter enthusiastic about doing his own home.

Their lack of glossiness and washability, however, put them at a disadvantage, and they were virtually off the market by 1950.

Latex paints owe much of their washability to the fact that the tiny particles in the dispersion coalesce on "drying" to produce a smooth and sealed surface. After several weeks

ageing, the paint polymerizes on the wall to give the scrub-resistant finish.

Low Bounce: Despite the frequently used term, rubber-based, the styrene-butadiene latex paints don't have too much in common with rubber. The film is made of a copolymer that is perhaps 55% styrene, 45% butadiene; that's considerably different from the 20% styrene, 80% butadiene ratio that ends up in tires. Further, the latex for paints won't vulcanize.

Both monomers might be used in paints by themselves. The styrene, however, is a somewhat brittle film unless plasticized, and, by itself, needs heat to fuse into a continuous film. Butadiene films are flexible and tacky. Together, they appear to counterbalance each other's shortcomings and eliminate the need for a plasticizer.

A typical latex paint vehicle is often modified by the inclusion of another vehicle such as common paint oils. Even PVAc can be used to modify the vehicle. Alkyd resins are often put in, too. These alterations change the qualities slightly, sometimes improve gloss or simplify pigment wetting.

Some care must be exercised in making the paints—very hard water can interfere by breaking the colloid (a sequestering agent like EDTA will lessen this problem). And, for a like reason, calcium sulfate pigments generally aren't used. For coloring the paints, alkali-fast pigments are used.

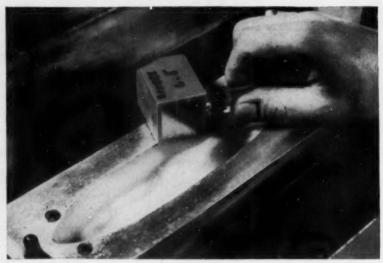
Other additives include protective colloids, thickeners, mildew preventives, and the like. It's a pretty demanding sort of mixing, and it has been largely the bigger paint firms that have gone in for the latex paints—many of which, incidentally, custom-make products for smaller firms.

Age Problem: A frequently advanced complaint is that the styrene butadiene films yellow and embrittle with age. After six years of experience with them, though, most formulators feel that careful pigmentation and vehicle modification has made these worries negligible

And most consumers seem happy with them; even professional painters accept them more and more, as yearly production of 40 million gal./yr. shows.* But they aren't promoted as they once were, and growth lately hasn't been as spectacular as before.

They've grabbed a big chunk of the \$1.4-billion paint business as an interior paint; latex makers foresee as big a market when they get outside.

The ease and simplicity of latex paint application actually seems to trouble pros. Word is they're taking to work their own thinner-plain water—in sealed cans to preserve the iffusion of tricky, complicated paint mixing.



LAYING THE KEEL: Expandable beads are poured into steam-heated mold.

Puffed Polystyrene Debut

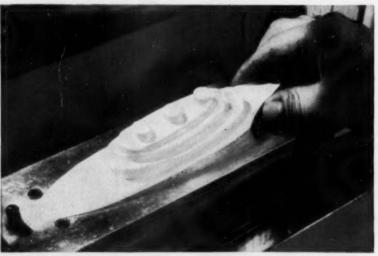
It was the debut, last week, of a brand-new form of polystyrene. Koppers Co. developed it—a bead-form, expandable plastic that produces a tough, snow-white foam—and introduced it to press guests at Pittsburgh. Koppers is, understandably, pretty excited about its new material. Although not the first foamed polystyrene, it's the first to be sold in the convenient bead form that can be molded readily into almost all shapes. Or, pre-expanded pellets can be formed into a variety of products, where less molding pressure is available.

Just what it impregnates the beads

with to make them expand, Koppers isn't saying until patents are granted. But expand they do, at steam temperature of 110-135 C, to about 30 times their original size.

The foam so produced is much tougher than comparable polystyrene foams. The tough skin the beads form when they swell, plus the fine, cellular structure, results in a material with high impact, tensile and flexural strength, plus resistance to crumbling.

Insulation properties appear to be excellent in the low temperature ranges (foam will fuse above 175 F). Expanded polystyrene has considerable buoyancy, and absorbs little



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TOP: Sample is submitted to high speed agitation to determine tendency of a system to foam. BOTTOM: Beaker #1 shows a foamy system after 30 seconds high speed agitation. Beaker #2 shows the same system, also after 30 seconds high speed agitation, but with a Nopce defoamer added.

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SPECIALTIES . .

water even over a long period of time. Its density, and its strength, can be varied over a range of from about 2 to 10 lbs./cu. ft.

Price Tag: Koppers is particularly pleased with the material costwise. At 60¢/lb., in large quantities, direct foam cost ranges from about 10¢/board ft. up to 50¢/board ft., depending on density. And Koppers points out that there are additional savings: in shipping costs, since the beads require much less shipping space than preformed foams, and in molding, since there is little waste.

Although its thermal insulation properties are better than materials like cork or mineral wool, it's flamable. But Koppers chemists are confident they'll be able to offer a non-



SWELL STUFF: Heat gives 30-fold expansion.

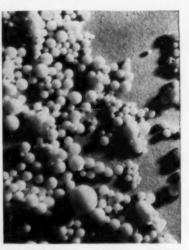
flame-supporting material soon.

Also, the firm foresees little difficulty in coloring the polystyrene, though it offers only the white product now. Molded products can, of course, be coated with currently available paints, and parts can be cemented with polystyrene adhesives.

More Than a Plaything: Demonstrating to potential customers the simplicity of molding with the beads, Koppers turned out a number of lightweight, foam toys. But the foam is not restricted to such playthings; it's visualized as a packing material, advertising display foam, as floats in lifebelts, etc.

Compressed, the foam improves in strength, and can be nailed or sawed—worked with common wood-working tool. It might conceivably have many uses wood has.

The expanded foam has many of the properties of plain polystyrene-



PRE-EXPANDED: Puffed beads look like this, can still be molded.

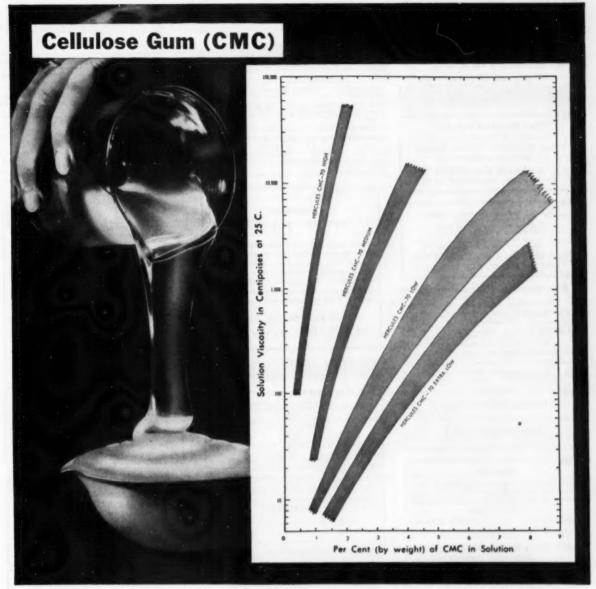
virtually no odor or toxicity, resistance to insects and fungus growth. Its dielectric properties are said to be superior to nonpuffed polystyrene.

The beads have considerable storage life—claimed to be four months at 80 F or below (the lower the temperature, the longer the life). Preexpanded beads, which the user will prepare, can be stored for about 10 days.

Koppers Chemical Div. is manufacturing the expandable beads at its Kobuta, Pa., plant, and says commercial quantities are available. Improved product development is continuing, but market development is getting the big push right now.



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Curves show the viscosity-concentration ranges at 25°C for four types of Hercules CMC: CMC-70 Extra Low, CMC-70 Low, CMC-70 Medium and CMC-70 High. Photograph at left shows one thickening effect possible with a CMC-water solution.

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2, 4-D and the Law

Although it's one of the best herbicides, 2,4-D also is a problem chemical—frequently gets in trouble with the law. The latest case is in Texas' Liberty County. What makes it more than a routine crop-damage case is that it's the first time action has been taken by interested parties under a provision of a herbicide regulation law passed last September.

Under the law, the state is empowered to prohibit the use of 2,4-D in any given county. While herbicide producers recognize this is possible, they don't think it will happen. However, they're a little uneasy about the

Here's the 2,4-D situation in Texas. The present law regulates the use of all hormone-type herbicides ("any substance producing a physiological change in plant tissue without burning"), supersedes similar laws passed in 1949 and 1951. It differs from previous measures in this respect: it contains a provision that entitles anyone with a complaint to a hearing (formerly the commissioner of agriculture decided such things).

Other provisions: application of hormone-type herbicides in dust form is prohibited. Herbicides shall not be sprayed when wind velocity exceeds 10 miles/hour. Equipment must not give less than a 300 micron-size droplet. Appliers must execute a surety bond in the penal sum of \$20,000 or hold a policy of crop damage insurance for the same amount.

The Issue: Late in January, The Liberty County Cotton Growers Assn. requested that Commissioner of Agriculture John C. White grant it a hearing. On the evening of Feb. 8, more than 450 persons jammed into the district court room at Liberty. The cotton growers spoke first, the rice growers—the users of 2,4-D—second. The cotton growers said that, because of 2,4-D drift, they were losing from one-eighth to one-half a bale for each acre planted. Their demand: that 2,4-D be banned in Liberty County.

The rice growers said that their annual income was some \$6 million, that they were getting a yield of 15 bbls./acre, that, if 2,4-D were banned, the yield would drop 5 bbls./acre—which would mean a loss of \$1,350,000 year. Their defense: that they had violated no section of the 1953

Testifying for the rice growers was Dow's W. W. Sunderland who reported the progress Dow is making on a spray that, it is hoped, will do the work of 2,4-D without having the

harmful effects on cotton—(Silvex, which is trichlorophenoxy propionic acid, and which will not be available for farm use until next year [CW, Jan. 23]).

The next move is up to Commissioner White who was sent tape recordings of the hearing. He is expected to render a decision within 90 days of the hearing. (One reason Texas cotton growers are up in arms is that there have been no prosecutions under any of the three herbicide laws—there were several damage suits but they were settled out of court.)

Outside Texas: Seven or eight other states have laws regulating application of herbicides. But it's not only public officials who want to keep crop damage at a minimum. Producers and formulators of 2,4-D are turning out products that are lower in volatility than they used to be.

As for the outcome of the Liberty hearing, one producer has this to say: "If laws were passed to obviate all harm from herbicides, it wouldn't be possible to use them. Government officials know this. That's why some sort of compromise is generally the rule."

Still, a 2,4-D ban is possible. If that happens in Liberty County, it might spread to other Texas counties

and to other states. That's why herbicide makers are waiting anxiously for Commissioner White's decision.

Coatings Review

Just off the press last week: the new Annual Review of the Paint Industry for 1953. Compiled and edited by George S. Cook of the Chemical Division of General Electric, the 232-page volume gives the highlights and developments of the paint industry over the past year.

It is compiled largely from articles about and relating to paint carried in some 20 U.S. and British journals. They are covered, in general, up to October of last year. This is the first time Cook, who was a paint chemist with the Corps of Engineers and the National Bureau of Standards for nine years before joining GE, has put his resumé in one volume. The plan now is to make it a yearly affair.

In its new form, the review looks over the business and management aspects of paint making, devotes a portion to new production ideas, and chapters to paint raw materials such as polyols, resins, and polymers. All data is referenced to its source publication, and an authors and subject index is included.

The new book is sold (for \$3.50) by Paint and Varnish Production, 855 Sixth Ave., New York.

Popular Color: Although industry records are getting deeper in the red, that doesn't mean they're all on the debit side, according to Minneapolis-Honeywell's industrial division. Last year customers buying the firm's recording instruments purchased nearly twice as much red ink as the next most popular color, purple. Red ink was chosen over the traditional blue and black because of its greater legibility.

Weed Control Film: A 16mm sound color motion picture film explaining weed control procedures in cotton with Chloro-IPC has been produced by Columbia-Southern Chemical Corp. The film presents a step-by-step guide for use of the herbicide under various weather and soil conditions. Prints may be procured from the company's district offices for showing to interested groups.

Mission Report: As a result of a recent U.S. mission to Brazil, carnauba wax gradings are on the way to being improved. The difficulty has been that the gradings established in 1941 do not adequately cover all the grades now being produced. The American



Room-Cured

CURING at room temperature, without pressure and full air exposure, a new silicone rubber has just been introduced by Dow Corning Corp. Suggested for caulking compounds, as a cloth coating dope, and as a potting compound, it's claimed to set in 4 hours, cure in 24. It's called RTV (room temperature vulcanizing) Silastic.

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SPECIALTIES. . . .

Wax Importers and Refiners Assn., sponsor of the mission, and the Instituto de Oleos in Rio de Janeiro have agreed to collaborate on clarifying the various standard grades, specifications and uniform methods of analy-

Antibiotics and Dentistry: Antibiotics should not be employed to control tooth decay. That was a conclusion reported at a recent meeting of the Odonto-Chirurgical Society in Philadelphia. The speaker, Dr. Raymond Bard, head of Smith, Kline & French's microbiology section, explained that abusive use of antibiotics can lead to bacterial resistance, patient sensitization and even chronic toxicity. However, he recommended antibiotic therapy for combating focal infection, for root canal sterilization and for counteracting bacterial conditions immediately following tooth extraction.

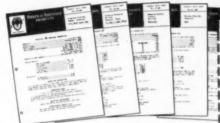
For Glycerine Users: "Glycerine-Preferred for Product Conditioning" has just been published by the Glycerine Producers' Assn. Outlined in the 20page booklet are the properties that make glycerine suitable for conditioning toilet goods, pharmaceuticals, foods, films, fibers.

Alkyd Resin Help: Heyden Chemical Corp. forecasts that new types of alkyd resins made with trimethylolethane (TME) will become preferred surface coatings for appliance and motor vehicles. Advantages Heyden says TME gives the resins: improved color retention, better outdoor durability, better solvent resistance.

Role for Detergent: Among the things discovered in just-announced tests at the North Carolina Agricultural Experimental station is that the detergent Fab has a place in the world of weed killers-in a water solution of ammonium nitrate used in postemergence treatment. The explanation: the detergent, by acting as a wetting agent, gives more even coverage of the plant and dissolves a waxy covering on the leaves so that the liquid nitrogen can kill the tissue more easily.

Flameproofing: The U.S. Dept. of Agriculture has just issued a publication (AIC-364, Nov. 2, '53, processed) that gives technical data on a new, durable, flameproof and glowproof, and, to a lesser extent, wrinkle- and rot-resistant finish for cotton textiles. A free copy may be obtained from Southern Regional Research Laboratory, New Orleans 19, La.

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Aluminum Nitrate, Crystal, Technical	DA-32341	-
Aluminum Sulfate, Hexahydrate, Technical	DA-48871	ξ
Ammonium Acetate, Crystal, Purified	DA-32711	_
Ammonium Fluoborato, Crystal, Technical	DA-32731	0
Ammanium Fluoride, Crystal, Technical	DA-32671	Z
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Investigate the advantages offered your product by the WITCO Chemicals listed . . .





PLASTICIZERS Butyl Oleate—secondary plasticizer imparting low temperature properties, especially to Neoprene WRT. Butyl Stearate—plasticizer-solvent in coating compositions. Dibutyl Phthalate—compatible and efficient plasticizer—especially in nitro-cellulose lacquers. Dioctyl Phthalate—low volatility, lack of odor, excellent light and heat stability.

STABILIZERS WITCO Stabilizer #90—non-toxic. For food-wrapping film. WITCO Stabilizer #80—cadmium-barium type liquid, efficient under dynamic heat conditions. Valuable in plastisols, organosols. WITCO Stabilizer #70—unusual heat stability, good lubricity. Lead Stearate #30—for non-transparent vinyls—electrical grade for insulation. Lead Stearate #50 (dibasic)—for opaque goods. High lead content. Cadmium Stearate—for transparent formulations. Barium Stearate—for colorstable items which come in contact with sulphur fumes. Calcium Stearate—non-toxic. Used in vinyl films for foodstuffs.

Witcarb® (precipitated calcium carbonate)
Ultra-fine white extender and reinforcing agent for
vinyl and other plastics. Available in three grades:
Witcarb Regular (0.10-0.35 microns), Witcarb P
(0.045-0.055 microns), Witcarb R (0.033-0.040
microns).



STEARATES Aluminum, Barium, Calcium, Lead, Magnesium—for internal lubrication and easier processing. Aluminum, Sodium, Calcium, Magnesium, Lithium—as gelling agents for plastigels.

CARBON BLACKS For jet-black color. Low specific gravity makes high loadings possible.



Write today for complete information on any of these WITCO Products. Samples available for your evaluation.

WITCO CHEMICAL COMPANY

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